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THE DEVELOPMENT OF CREW DRILLS FOR ARMOR WEAPON SYSTEMS

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Education and Training

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The Fort Knox Field Unit of the Army Research Institute for the Behavioral and Social Sciences (ARI) carries out research and exploratory development in the area of armor training. An objective of this work is to develop, through analytic and field research, tank crew, and individual training methods that are effective and efficient.

This report describes the methodology used to design and develop crew drills for armor weapon systems. It describes the steps taken to develop a training approach that incorporates the concept of dry-fire training in a low-cost environment. It also describes the steps taken to develop a tank gunnery crew drills training document for the Ml General Abrams, M60A3, and M60A1(AOS) tanks.

The research was done under ARI FY 81 Work Program, Army Project 20263743A794, Armor Training in Combat Units.

EDGAR M. JOHNSON
Technical Director

Accession For

EXECUTIVE SUMMARY

Requirement:

To maximize the combat potential of Armor weapon systems through research on the design and development of new training concepts and prototype training programs for gunnery and maintenance tasks in armor systems.

Procedure:

The primary objective of the research was to design a crew drills training approach for armor weapon systems that would incorporate the concept of dry-fire training in a low cost environment. A secondary objective was to develop a set of tank gunnery crew drills for the M1 General Abrams, M6OA3, and M6OA1(AOS) armor weapon systems to demonstrate the feasibility of the training approach.

Armor training literature was obtained and reviewed to identify the current approach to crew drills training. A dry-fire crew drills training concept was then developed to include guidelines for program management, task performance and evaluation, and quality control.

A set of prototype crew drills for three armor weapon systems were subsequently developed following this design blueprint. Tank gunnery requirements considered representative of the domain were selected and analyzed to identify individual task performance by crew position and phase of target engagement. Individual task performance rated critical to crew drills performance were then specified for evaluation.

Findings:

A crew drills training approach was designed and developed for dry-fire training tank gunnery requirements in a low cost environment. This approach adheres to the training management guidelines and performance oriented approach adopted by the Army, but does so from a prescriptive rather than descriptive viewpoint.

Separate sets of prototype tank gunnery crew drills were developed for three armor weapon systems to demonstrate the feasibility of the training design. These companion documents are presented in Appendix A, Crew Drills for M1 General Abrams Tank Gunnery; Appendix B, Crew Drills for M60A3 Tank Gunnery; and Appendix C, Crew Drills for M60A1(AOS) Tank Gunnery.

Utilization of Findings:

The crew drills training approach developed by ARI has been adopted by the Directorate of Training Developments (DTD), U.S. Army Armor School (USAARMS), for training both tank and track vehicle commander collective tasks. The separate sets of gunnery crew drills developed for the M1 Abrams, M60A3, and the M60A1(AOS) have been modified slightly to meet TRADOC requirements, and are contained in FM 17-13-1 (Tank Commander's Guide for the M1 Abrams), FM 17-13-2 (Tank Commander's Guide for the M48/M60 series Tank), and FM 17-13-3 (Tank Commander's Guide for the M60A3 Tank).

THE DEVELOPMENT OF CREW DRILLS FOR ARMOR WEAPON SYSTEMS

CONTENTS

Рад	зe
INTRODUCTION	1
Background	1 2
PROCEDURE	2
Objective	2
PART I: DEVELOPMENT OF A CREW DRILLS TRAINING APPROACH	3
Literature Review	3 4 6 7 8
PART II: DEVELOPMENT OF PROTOTYPE CREW DRILLS TRAINING PROGRAMS	9
Identification of Gunnery Task Requirements	9 11 13 14 15
SUMMARY AND CONCLUSIONS	16
REFERENCES	L 7
APPENDIX A. CREW DRILLS FOR M1 GENERAL ABRAMS TANK GUNNERY	-1
B. CREW DRILLS FOR M60A3 TANK GUNNERY	-1
C. CREW DRILLS FOR M60A1(AOS) TANK GUNNERY	-1

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		Page
	LIST OF TABLES	
Table 1.	Engagement conditions and levels of conditions possible for three Armor weapon systems	10
	Tank gunnery crew drills selected for M1, M60A3, and M60A1(AOS) training	12
	LIST OF FIGURES	
Figure 1.	Armor training structure	1

INTRODUCTION

BACKGROUND

In a joint review of the Ml Transition Training that was conducted during Operational Testing (OT-II) at Fort Bliss, Texas, Directorate of Training Developments (DTD) personnel, US Army Armor School, and ARI attempted to identify critical issues pertinent to effective training delivery for the Ml General Abrams tank. At this time a training paradigm was conceptualized to represent the current training structure for Armor. As shown in Figure 1, this paradigm contains six hierarchical levels of training and eight subsequent interface problem areas. Transition from one level of training to another is dependent on the successful completion of each subordinate level. For illustrative purposes, performance gates (labelled 1-8) are depicted at each interface.

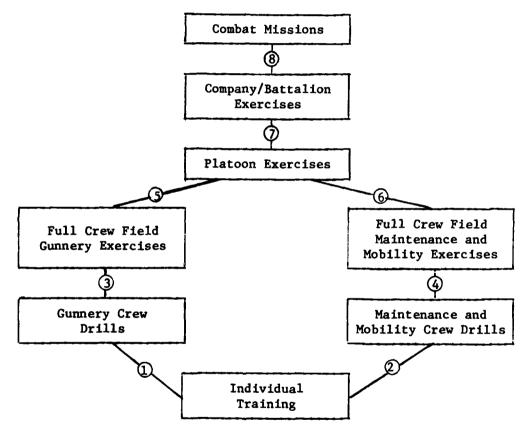


Figure 1. Armor Training structure

From an analysis of this training structure an immediate need for interfacing Ml individual skills training and tank gunnery crew drills (Gate 1) was identified. Generally, it was agreed that even though individual tank crew members might be capable of performing their job tasks proficiently, one or more may be quite incapable of functioning effectively as part of a tank crew. What crew skills needed to be trained, and how they are best trained and

integrated into an Armor training structure remained to be specified. In essence, insufficient attention has been given to team building exercises where crew members could weld their individual skills to a collective effort that is both effective and efficient.

To respond to this problem, the Weapons System Training Team within the Fort Knox Field Unit of the US Army Research Institute for the Behavioral and Social Sciences (ARI) initiated a program of research to design and develop crew drills for Armor that would incorporate a dry-fire training concept and enable tank crews to exercise their tank gunnery skills in a low cost environment. This research was included as part of an ongoing research effort concerned with developing, through analytic and field research, tank crew and individual training methods that are effective and efficient.

PURPOSE OF RESEARCH

This report describes a research attempt to bridge the gap between individual and tank gunnery crew drills training by the design and development of crew drills for armor weapon systems training. Impetus for the research effort has come from DTD, USAARMS, and is based on DTD's continuing efforts to provide quality crew drills training programs for sustainment of collective skills. If proven effective, the proposed crew drills would provide a model for conducting collective training in Armor units. It would insure that each crewmember has the individual and collective skills required to function as part of a tank crew. It also would provide training managers with the diagnostic tools necessary to identify both individual and crew deficiencies.

PROCEDURE

OBJECTIVE

The primary objective of the research was to design crew drills for armor weapon systems that would incorporate the concept of dry-fire training in a low-cost environment. A secondary objective was to develop a set of prototype crew drills for M1, M60A3 and M60A1(AOS) armor weapon systems to demonstrate the feasibility of the crew drills approach.

METHOD

To accomplish the research objectives, separate but sequential research and development efforts were undertaken. First, a five-step approach was conceptualized for designing crew drills. The first step obtained and reviewed was armor training literature directly related to tank crew drills training. After examining the documents to determine the existing training doctrine, a dry-fire crew drills training approach was formulated. To complement the approach, guidelines for program management, task performance and evaluation, and quality control measures were addressed. Also included in this effort was the development of a training conditions matrix and a training record that would promote the development of crew drill proficiency at increasing levels of task difficulty. The specific details involved in carrying out each of these steps are described in Part I.

Prototype tank gunnery crew drills for the M1, M60A3, and M60A1(AOS) tanks were developed to accomplish the second objective. For each separate system, armor literature relevant to the operation of each tank was obtained and reviewed along with available crew drills training documentation. Information gathered from these materials were then used to determine the subset of tank gunnery crew drills necessary and sufficient to represent each domain. Subsequently, individual task performances were identified by crew position and target engagement phases for each crew drill and content-validated using subject matter experts (SMEs). By analyzing task performance across crew positions, individual tasks considered critical to each gunnery performance were identified for the purposes of crew drills evaluation. The particulars involved in carrying out each of these steps are more fully described in Part II.

PART I: DEVELOPMENT OF A CREW DRILLS TRAINING APPROACH

LITERATURE REVIEW

To become familiar with the current training approach recommended for crew drills training, Training Circulars for the M48A5, M60, M60A1, and M60A1(AOS) tanks (TC 17-15-11), M60A2 (TC 17-15-12), M60A3 (TC 17-15-13), and M1 tank (TC 17-15-14 DRAFT) were obtained and reviewed. Aside from the technical differences due to weapon capabilities of each system, the training circulars were found quite similar in design. Part One listed the task, to include conditions and standards, and training references. Part Two identified training and evaluation guidelines. Part Three detailed the performance steps the crew would follow in carrying out the task. The crew drills training approach recommended for each weapon system was identical. Crew level training was to be conducted by the tank commanders, with the platoon leader or sergeant serving as supervisors/evaluator. Crew drills training was to be conducted like all other unit training, and accomplished collectively by having each crewman perform his individual tasks simultaneously with the others to accomplish the intended team effort.

The results of this literature review can be summarized in three statements. First, the training management functions necessary to conduct an efficient crew drills training program were undefined. Platoon leaders and sergeants were tasked to function as supervisors and evaluators based solely on their previous related experience. The assumption being made is that the experience and knowledge platoon leaders and sergeants have gained in conducting previous unit training qualifies them to function effectively as training managers. What we know about the current level of crew turbulence in armor units (Eaton & Neff, 1978) indicates that this is not the case. In fact, effective management techniques need to be developed for the collective training subsystem to significantly minimize the training time normally lost while tank crews attempt to "get their act together."

In addition to a lack of training management guidelines, formal guidance on how to conduct crew drills training was descriptive. That is, it told you what to do but not how to do it. Tank commanders were instructed to train individual tasks using performance-oriented concepts and to train collectively

by allowing each crewman to perform his tasks simultaneously with the others. Again, it's assumed that platoon leaders and tank commanders are qualified by their position to perform each of the individual training tasks. Most Armor units are affected by personnel turbulence to varying degrees. As such, some soldiers are assigned as tank commanders with little or no previous training. Others are assigned as tank commanders even though their primary MOS is not Armor. Still others are transferred to a new or different tank weapon system in which they are at best, only minimally qualified. To combat this problem, even for those few tank commanders who have the relevant experience and training, a prescriptive method of conducting crew drills training needs to be developed.

A final result of the literature review was the restrictive approach to evaluating individual and crew performance. Platoon leaders and sergeants were directed to measure achievement by observing both the product (time, target hit/miss) and process (performance steps) of crew performance. Unfortunately, the product and process measures are applicable only for evaluating "live fire" performance. As noted in the current tables of allowance, main gun ammunition for live-fire performance is not allocated for crew drills training. Crew drills training has to be accomplished with ammunition from gunnery qualification, Army Training and Evaluation Program (ARTEP) live-fire exercises, or through the use of subcaliber devices. For all practical purposes, most gunnery crew drills are trained and evaluated on the basis of "dry-fire" or "subcaliber fire," neither of which are addressed in the current crew drills training circulars. In summary, the evaluation criteria are inadequate for conducting crew drills training. Both dry-fire and subcaliber firing conditions and standards, training and evaluation guidelines, and performance steps need to be developed for each existing crew drill exercise.

TRAINING APPROACH

The performance oriented training approach adopted by the US Army in recent years remains the training approach recommended in the proposed crew drills. Soldiers are trained based on precisely stated performance objectives that clearly specify what they must be capable of doing in their assigned or anticipated job. Lectures, discussions, and conferences are held to a minimum while the majority of training is focused on the conduct of practical exercises. Such a "hands-on" approach to training is considered mandatory if those being trained are to become experienced at performing their assigned tasks under the conditions and standards expected on the job.

In the current crew drills literature, the implementation of a performance oriented training approach resides in the hands of local commanders as training managers. Their experience plus training know-how determines whether crew drills training eventually succeeds or fails. In some situations these factors are sufficient. However, without training guidance, such training can become instructor dependent. In other words, how well an individual performs is dependent on who trained.

The proposed training approach attempts to provide personnel involved in crew drills training with the guidance and materials necessary for effective

and efficient training delivery. At the onset, tank crews, as well as individual crewmembers, are expected to meet their individual knowledge and skill requirements before participating in gunnery crew drills training. This requirement serves dual purposes. First, it eliminates the misuse of limited training time and resources by providing only the type of training that should be taking place. Second, since crewmember(s) do not have to sit around while other(s) are being trained to perform prerequisite tasks, it maintains the motivation to learn.

As mentioned later in this report, the key to the success of the proposed crew drills approach depends on whether the platoon leader carries out his assigned training responsibilities. In the proposed crew drills approach the platoon leader must be capable of performing each individual task called for in a given crew performance. Once these capabilities are acquired, he must then insure that each of his tank commanders know how to perform these tasks by conducting crew drill training. This "train the trainer" approach to crew drills is unique in that each tank commander is rotated through each of the four crew positions during a crew drill. This insures that each tank commander "knows what he's talking about" before he begins to train his own tank crew. It also prepares tank commanders to follow the recommended training approach by having them experience it first hand. As an added benefit, any technical or training-related problems encountered during the "train the trainer" session are resolved by the platoon training team as a whole, rather than by individual tank commanders during the conduct of crew training.

During this preliminary training session, the platoon leader provides detailed guidance for preparation of training at the tank crew level. After describing how to set up a target condition for a crew drill performance, the crew of tank commanders are instructed to enter the tank and establish the conditions specified for both the firing vehicle and their assigned crew stations. Safety regulations for tank operation are subsequently reviewed and the crew is given the green light to conduct training.

Acting as the tank commander, the platoon leader reminds the other tank commanders to follow the crew drills training approach being rehearsed in this training session. He then informs the crew of the training activity and the standard of performance specified for the crew drill. How the training is to take place, how long, and how they will be evaluated at the end of training are also explained.

During the actual presentation of training, the platoon leader "walks" each crewmember (tank commander) through his tasks as detailed by the crew drill procedures. He critiques each task activity as it is performed, and then provides whatever instruction is necessary to improve the quality of that performance. Crewmembers not directly participating in training at any given time are instructed to review their individual task requirements.

In summary, the training approach presented in the proposed crew drills is performance oriented and structured to provide the type of training essential for effective and efficient performance. It is performance oriented in that soldiers are trained to perform their tasks "hands-on" to the conditions

and standards specified for the job. It is structured in that, (a) personnel responsible for training delivery are required to demonstrate their ability to perform the tasks for which they will be conducting training, (b) detailed guidance is provided for setting up the conditions for training, introducing the training to the tank crewmembers, and for conducting the training, and (c) performance diagrams detailing the task procedures performed by each crewmember are provided to carry out each of the crew drills.

GUIDELINES FOR PROGRAM MANAGEMENT

Program management techniques are major influences on the efficiency of training. This fact has been recognized by the Army and has been addressed in "Training Management: An Overview," (TC 21-5-1), a Training Management Digest publication which has been incorporated into a revised edition of "Military Training Management" (FM 21-5). This Army FM provides commanders/training managers and their staffs with an overview of a ten-step model for developing an effective training program.

The proposed crew drills approach is in keeping with this policy of training management, but is prescriptive rather than descriptive. That is, it attempts to more fully define the duties and responsibilities of each member of the training staff in carrying out his individual and collective efforts. At the highest level of command, the battalion commander retains the final authority and responsibility for the overall training subsystem. He continues to provide the mission type training guidance to accomplish the broader command missions, allocates training resources, and monitors and evaluates the effectiveness and efficiency of the training subsystem. However, the primary focus of the crew drills training effort begins at the tank crew level with each higher level of command assuming greater overall responsibility for the training. Guidelines for establishing individual responsibilities in the proposed crew drills are described below.

Tank Crewmembers. Each crewmember is given the primary responsibility for acquiring the knowledges and skills necessary to perform his individual job. They must obtain whatever self-instruction is needed to develop and maintain their individual skills proficiency so that intended team efforts can be achieved.

Tank Commander. Tank commanders are given the primary responsibility for implementing tank gunnery crew drills within their own tank crews. They must instruct each crewmember in his individual procedures, and then train them as a team to perform the crew task requirements. Whatever remedial training is necessary to ensure training success must be provided.

Platoon Sergeant. Platoon sergeants are given the major responsibility for carrying out all administrative and technical matters relating to crew drills implementation. In particular, they must ensure that individual tank crews are trained and evaluated as scheduled, and that the equipment, materials, and facilities necessary to implement both are available when needed. As senior tank commanders, they must provide their platoon leader with the knowledges and skills needed for effective operation and maintenance of the armor weapon system.

Platoon Leader. Platoon leaders are given direct responsibility, as training managers, to conduct, evaluate, and manage the overall training subsystem. Their most important function, and the key to the success of the proposed crew drills, is to train their individual tank commanders in how to prepare and conduct crew drills training. They must ensure that each tank commander is capable of performing both their individual and crew tasks and can implement the recommended training approach.

Company Commander. The company commander is given command responsibility for the total training and evaluation effort within the framework of the unit's assigned mission requirements. In particular, he must determine the unit's current level of individual and crew tank gunnery proficiency to include scheduling the required pre- and post-testing and obtaining the necessary evaluation resources. He also must quality control the total training effort by evaluating training success and adjusting training as necessary to meet both individual and unit readiness standards.

GUIDELINES FOR PERFORMANCE EVALUATION

The evaluation guidelines specified in the Army's present approach to crew drills training states that "each crew member must perform all actions as outlined in the recommended performance steps within the specified time." The "specified time" being referred to is presented in the performance standards prepared for each crew drill. For each tank gunnery requirement, the performance standard specifies that the tank crew must, (a) open fire within so many seconds after a target appears, and (b) obtain a hit within the total number of seconds specified for the engagement. If a tank crew fails to meet the performance standards, the test evaluator(s) is to, (a) explain the weak areas to the crewmember(s), (b) have the crewmember(s) practice at their own pace, and (c) have the crewmember(s) repeat the drill when they are ready.

Unlike these guidelines for evaluation, the proposed crew drills recommends both a formal and informal approach. The formal approach recommends the use of the Tank Crew Gunnery Skills Test (TCGST) to diagnostically assess individual gunnery performance. The TCGST should be administered to every crewmember who newly joins a tank crew to ensure that each has the prerequisite knowledges and skills to perform his individual job tasks proficiently. The crew drill diagnostic tests should be administered annually to determine each tank crew's overall gunnery proficiency.

The informal evaluation approach focuses on the certification of crew drill performance by the platoon leader and platoon sergeant. Detailed guidelines for certification are the same as those for training and are identified separately for each crew drill. In setting up the certification or appraisal, the platoon leader and platoon sergeant should: (a) obtain the support specified for training, (b) establish the conditions identified for training, and (c) take up designated positions on the tank where they can best observe the crew's performance. To conduct the appraisal they should use the same detailed procedures guide developed for training, paying particular attention during the crew performance to the task behaviors rated critical (marked with a _____ on the crew drill Procedures Guide). At least three performance trials are recommended

in appraising a tank crew's performance of a crew drill followed by a critique. An appraisal is considered successful when, (a) all of the actions specified on the performance checklist are performed correctly, and (b) the crew completes the crew drill requirement within the time specified for the engagement. In critiquing the crew's performance, the platoon leader should begin with a review of each individual crewmember's performance, followed by a review of the tank crew's overall performance. Tank crews passing the appraisal (GO) should be certified on their Crew Drills Training Record, while those that fail (NO-GO) should be instructed to practice the crew drill until the identified individual and/or crew training deficiencies are removed. This failure should be noted on their Training Record until they become crew drill certified.

GUIDELINES FOR QUALITY CONTROL

The purpose of quality controlling a training subsystem is to provide commanders/training managers with the information necessary to prepare or revise future training plans. If neglected, or poorly done, the total training subsystem becomes static and eventually incapable of meeting the needs of the unit or the individuals for whom it was designed.

In the present approach to crew drills training, guidelines for establishing quality control measure are undefined. Although commanders/training managers are usually cognizant of the need for such measures, the guidance needed to implement a quality control program is not available.

In the proposed crew drills, specific guidelines are established for both the company commander and the platoon leader. For the company commander, a five-step procedure is recommended for monitoring training program success. Specifically, company commanders should, (a) randomly select at least two tank crews from the company, (b) pick out both individual and crew performance tasks for verification, (c) conduct the evaluation, (d) verify the results with previously obtained evaluation reports, and (e) if grossly different, introduce whatever corrective actions are deemed necessary. Company commanders should continue to stay abreast of the total crew drills training effort by developing a company training record similar to the Crew Drills Training Record for tank crews.

At the platoon leader level, a similar training program monitoring process is provided to help platoon leaders continuously update the achievement of their individual tank crews. It is recommended that platoon leaders, (a) randomly select tank crews to verify adherence to the training approach, (b) conduct regular meetings with various crewmembers to determine their attitudes toward training and what improvements, if any, they feel would contribute to a better quality program, and (c) submit regular progress reports to the company commander informing him of the platoon's training status. Like the company commander, platoon leaders should construct a training record to assist them in their quality control efforts.

PART II. DEVELOPMENT OF PROTOTYPE CREW DRILLS TRAINING PROGRAMS

LITERATURE REVIEW

To become familiar with the capabilities of the M1, M60A3 and M60A1(AOS) tank weapon systems, a review of the available technical documentation was conducted. The Operators Manual for the three tanks (TM 9-2350-255-10-1, TM 9-2350-253-10, TM 9-2350-215-10) provides tank crewmembers with the necessary information to operate the tank under usual and unusual conditions, check it for proper operation and keep it serviceable, and to prepare each crew station for operation. The Tank Gunnery Field Manual for each tank (FM 17-12-1, FM 17-12-2, FM 17-12-3) provides tank crewmembers with the gunnery doctrine and techniques unique to the weapon system. Included in each FM are the Tank Crew Gunnery Skills Test, Gunnery Firing Tables, and Firing Table Score Sheets. The Crew Drills Training Circulars reviewed earlier during the development of the collective training model, provide the training objectives, training/evaluation guidelines, and recommended performance steps unique to each weapon system. They provide a series of tank gunnery and mobility drills designed to enable a tank crew to destroy enemy targets and survive on a modern battlefield.

In addition to these sources, SMEs from the Weapon's Department, US Army Armor School were contacted frequently to discuss problems not fully explained or understood from the documentation.

IDENTIFICATION OF GUNNERY DOMAINS

In reviewing the technical and gunnery literature, it became apparent that the domain of possible gunnery tasks for the M1 and M60A3 could not be specified as it could for the M60A1(AOS) (Kraemer and Boldovici, 1975). A short cut approach needed to be taken that would generate the same results. Working within this framework, a matrix of engagement conditions by level of conditions possible was identified for each tank weapon system (see Table 1). A greater number of engagement possibilities exists for the M1 Abrams tank versus the M60A3 or M60A1(AOS). The same holds true for the M60A3 versus the M60A1(AOS). For both tanks, the increase is due to the enhanced capabilities of the fire control system.

Within each domain of possible engagements there exists several systems performance requirements fundamental to all tank weapons. The first of these is to engage main gun targets from the gunner's station. A secondary requirement is to engage coax or caliber .50 targets from the gunner and tank commander's stations respectively. A third is to engage targets at night using direct or indirect methods of fire. A fourth and final requirement is to engage targets under degraded conditions, such as a primary sight failure.

In addition to these requirements there are several combinations of threat and Army vehicle modes that combine to define tank crew performance. As shown in Table 1, single, multiple or simultaneous targets can be engaged by a tank crew. Targets can be moving or stationary and, depending on the weapon system, can be engaged while the gun platform is stationary, moving, or from a brief halt.

TABLE 1. Engagement Conditions and Levels of Conditions Possible for Three Armor Weapon Systems.

Crew Member	Weapon	Firing Mode	Firing Vehicle Motion	Number of Target	Target	Target Type	Day or Night	Fire Control Instrument	Ammunition
Tank Commander	Main Gun	Normal	Stationary Single	Single	Stationary	Stationary Tank (TNK) or Light Armored Vehicle (LAV)	Day	Gunner's Primary Sight	SABOT or HEAT
Gunner	Coax	Emergency	Moving to-a-halt	Simultan- eous	Moving	Thin- skinned Vehicle (TSV)	Day or Night (M1/A3)	Cmdr's Main Gun Day Sight	HEP
Loader (Ml Only)	.50 Caliber	Degraded	Moving (M1/A3)	Multiple (3)		TSV or Crew- Served Weapon	Night	Gunner's Auxiliary Sight	BEEHIVE
	H240 Machinegun (Ml Only)					Bunker or Crew- Served Weapon		Gunner's Night Sight	7.62mm
						Troops		Cmdr's Main Gun Night Sight	.50 Caliber
						Aircraft		Cmdr's Wpn Sight (.50)	

Using these data sources a tentative list of tank gunnery requirements was identified for each weapon system domain. The next step was to select those which were considered most representative.

SELECTION OF TANK GUNNERY CREW DRILLS

Table 2 identifies the sets of gunnery crew drills selected by ARI and DTD personnel to be representative of M1, M60A3 and M60A1(AOS) gunnery domains. Thirteen crew drills were chosen for the M60A1(AOS) while 11 were selected for both the M1 and M60A3 tanks. On examination it will be noticed that several crew drills were excluded from one or another of the domains. The reasons for the M1 crew drill exclusions are several. The two indirect fire engagements were excluded since the M1 has neither an azimuth indicator nor an elevation quadrant for range card firing. Second, the M1 has a thermal imaging system which is used instead of or as a replacement for an inoperable periscope. As such, the telescope would only be used in an extremely degraded condition. The rationale for excluding the simultaneous engagement for both the M1 and M60A3 tanks is based on respective gunnery doctrine. The reason given is that the task is extremely difficult to perform and would best be accomplished from a short halt.

Further examination of the M60A3 crew drills will show that the multiple moving target engagement from a moving tank was excluded. The latest M60A3 gunnery doctrine (FM 17-12-3) recommends that the crew come to a short halt to engage moving targets. Also, excluded from the M60A3 crew drills, as well as the M60A1(AOS) crew drills are the two loader engagements. Neither of these crew drills are possible given the present weapon capabilities of each system.

IDENTIFICATION OF GUNNERY TASK REQUIREMENTS

Having selected the engagements to be included in the crew drills program, the next step was to identify the gunnery task requirements or activities performed by the individual crewmember. This was accomplished by breaking down the engagement into discrete phases, and then listing whatever activities were required to perform them.

Five (5) phases were identified during target engagements. The first phase identified was target acquisition. In this phase tank crewmembers search the terrain to detect targets and then report the target by alerting the crew. During this analysis several ancillary decisions were made. It was decided to, (a) restrict engagements conducted from a stationary tank to a turret-down position, (b) limit target acquisition to the tank commander, and (c) identify activities that could be omitted from an engagement by an asterisk (*). The results of these decisions and analysis of the target acquisition phase are shown in the prototype crew drill presented in Appendix A.

The second phase identified was fire preparation. In this phase the tank commander issues a fire command while (a) the gunner issues driving commands (if required) and readies the fire controls, (b) the loader arms the weapon, and (c) the driver maintains or moves the tank into firing position. (See Appendix A.)

TABLE 2. Tank Gunnery Crew Drills Selected For Ml, M60A3 and M60A1(A0S) Training.

TANK	DRILL M60A3	IDENTIFICATION 3 M60A1 (AOS)	CREW	TANK WEAPON(S)	TYPE	ENGAGEMENT MODE	METHOD	SICHTING INSTRUMENT	SYSTEM FAILURE
;	1.	1.	GNR	MAIN GUN	SINGLE	STA/STA	PRE	PERISCOPE	NONE
2.	2.	2.	GNR	MAIN GUN	SINGLE	STA/MOV	PRE	PERISCOPE	NONE
ı	e.	ຕໍ	GNR	MAIN GUN	SINCLE	STA/MOV	PRE	TELESCOPE	PERISCOPE
3.	4.	4.	GNR/TC	MAIN/.50	SIMUL	STA/MOV	PRE	PERISCOPE	NONE
.	5.	5.	GNR	MAIN GUN	MOLT	STA/MOV	PRE	PERISCOPE	NONE
۶.	•	6 ⁸ .	GNR	MAIN GUN	SINCLE	MOV/STA	PRE	PERISCOPE	NONE
• _Р •	7.	, JC.	GNR	MAIN GUN	SINCLE	MOV/STA	BS e	PERISCOPE	NONE
, o,	8°	&	GNR	COAX MG	MULT	MOV/STA	sup f	INFINITY	NONE
&	. q6	. q6	GNR	MAIN GUN	SINGLE	MOV/MOV	PRE	PERISCOPE	NONE
ı	ı	10b.	GNR/TC	MAIN/.50	SIMUL	MOV/MOV	PRE	PERISCOPE	NONE
9.	ı	11 ^b .	GNR	MAIN GUN	MULT	MOV/STA	PRE	PERISCOPE	NONE
1	10.	12.	GNR	MAIN GUN	MULT	STA/STA	RCB	AUXILIARY	NONE
ı	11.	13.	GNR	MAIN GUN	SINCLE	STA/MOV	RCLDF	AUX/PER	NONE
10.	ı	ı	LDR	M240	SINGLE	MOV/STA	SUP	NONE	NONE
11.	t	ı	LDR/TC	M240/.50	SIMUL	STA/MOV	SUP	NONE	NONE

^aMain gun engagements beyond 1600 meters from a M60A1(AOS) tank are to be fired from a brief halt. ^bBattlesight engagements are fired from an Ml tank only if the laser rangefinder is inoperable.

Range Card Lay to Direct Fire.

CThe periscope can be used to provide suppressive fire.

dPrecision. Battlesight. Suppressive. Rai

The third target engagement phase identified was first round firing. During this phase, (a) the tank commander determines range or verifies that the range obtained was acceptable and commands "FIRE," while (b) the gunner lays on target, tracks (if required), ranges (if possible) and actually fires the weapon, (c) the loader obtains a second round for firing or gets into position to do so, and (d) the driver steers toward the target and/or maintains a steady platform for firing. (See Appendix A.)

The fourth phase identified in an engagement was the fire adjustment phase. Here the tank commander round senses and then issues a subsequent fire command to either continue, modify, or end the engagement. The remainder of the crew round senses (if possible) and responds to the subsequent fire command. In conducting this analysis, another decision was made that affects overall crew drill development. With more than one option available to the tank commander, the decision was made to identify each possibility and allow the tank commander the option to exercise any or all of them during a crew drill performance. Since the option selected had a direct impact on subsequent crewmember performances, each crewmember was instructed to perform specific activities that preceded or followed this phase. A brief inspection of the crew drill presented in Appendix A should help clarify this decision.

The fifth phase identified in an engagement, if necessary, was second round firing. Here the tank commander and crew repeat many of the activities identified for firing the first round. The (a) tank commander determines, verifies or issues range and deflection corrections and commands "FIRE," (b) the gunner relays, relases or applies range corrections, and fires, (c) the loader reloads, rearms and prepares for a third round firing, and (d) the driver continues to drive or maintain engine control. (See Appendix A.)

The sixth and last phase identified in an engagement was the post action phase. For single engagements the tank commander would announce "CEASE FIRE" and the crew would return the fire control system to its original status. Had the crew fired from a hull-down position, it would return to the turret-down or alternate firing position, as required based on target destruction. If firing on the move or from a short halt the crew would either (a) continue to move (target destroyed), (b) seek a hull-down position (target miss), or (c) resume moving straight ahead or to a hull-down position. For multiple engagements the crew would repeat the engagement from either an alternate firing position (if stationary) or on the move (if moving).

After the performance requirements were identified for the selected engagements as described, they were presented to weapon system SMEs for content validation. Changes and modifications were subsequently made as a result of these reviews until they were finally agreed upon by ARI and DTD personnel.

IDENTIFICATION OF CRITICAL TASKS

The task requirements identified above provided the document by which a group of SMEs were asked to rate task criticality. In doing so they were instructed that tasks were to be rated critical to crew drill performance if they (a) could be observed and measured by an evaluator and (b) if failure to

perform the task correctly could result in a failure to meet the time and accuracy standards established for the crew drill. After rating each crew drill, the SMEs were asked to get together and resolve whatever disagreements they had among them.

The results of this effort were considered acceptable until later field evaluation could be conducted to determine its validity. Additional efforts were taken by ARI, however, to maintain consistency among tasks rated as critical to crew drills performance. A task which was not rated critical in one crew drill but was rated critical in a similar crew drill was changed to critical.

PREPARATION OF TRAINING CONDITIONS MATRIX

As mentioned earlier in describing the proposed crew drills approach, the tank commander is provided with a list of equipment conditions by crew station and crew drill. The purpose of such a conditions matrix was to standardize the gunnery engagement procedures across tank crews for both training and evaluation.

The conditions matrix presented herein was prepared primarily as a byproduct of the task detailing accomplished earlier. Specific assumptions were
made regarding the status of the vehicle and equipment operated by the tank
crew. For example, when the tank was stationary it was assumed that it would
be in a turret-down defensive posture. As such, the tank commander and loader
hatches would be open while they both attempted to locate possible targets.
For the other crewmembers it was assumed the engine would be operating while
the gunner would be maintaining the fire control system.

Given this scenario, further equipment status conditions evolved for each crew station. This included which weapons were armed or safed for firing, what ammunition was loaded, if any, whether the turnet was operating in power or manual mode, the position of the turnet lock, transmission shift control, etc. A complete listing of the conditions that were determined to affect crew drill performance is presented in Appendix A as Table A-2.

DEVELOPMENT OF CREW DRILLS TRAINING RECORD

In keeping with the guidelines recommended for quality controlling the crew drills training program, a training record was developed for certifying successful performance. This training record or form would be completed by the platoon leader/sergeant to indicate when an individual tank crew last qualified or failed to perform a particular crew drill. Maintenance of the training record was the responsibility of each tank crew.

In developing the training record it became apparent that with minor modification the training record should be expanded to include the development of crew drills proficiency at increased levels of task difficulty. In other words, a tank crew should be required to perform each of the crew drills under a set of conditions that more closely paralleled the real-world requirements of combat. At the first level of task difficulty, the crew drills would be performed with the hatches open and without protective masks. At the next level, the

crew would have to wear protective masks while keeping the hatches open. This would continue until both hatches are closed and protective masks are worn. From there tank crews would be tasked to perform the crew drill under degraded conditions, i.e., computer inoperable, turret power control failure, sight failure, etc.

The results of this layering of task difficulty are tank crews proficient in tank gunnery; proficient in the sense that they can perform each of the tank gunnery engagements under conditions that more closely represent battle-field conditions. By providing the means for this to take place, the training record becomes an immediate indicator of unit readiness. Whether it proves to be this useful depends entirely on the quality control program established by the unit commander.

DOCUMENTATION OF CREW DRILLS MATERIALS

Several activities were conducted to document the crew drills materials. The first was to design a format that would present the individual crewmember activities in a form that the tank commander could use for training and the platoon leader for evaluation. For training purposes, several methods were explored with mixed results. Initially, a flow chart was developed which linked individual crewmember activities together on a time line coincident with tank commander activities. This approach had a certain amount of cognitive appeal, but overwhelmed most of the SMEs who were asked to review it during the content-validation effort mentioned above. A second method was developed based on SME recommendations which eliminated the flow chart and merely listed the activities as presented in the first approach. This method was accepted by the SMEs.

The second activity undertaken was to determine the design for crew drills evaluation. Initially, it was decided to list each of the critical crewmember tasks identified earlier in the form of a pass-fail checklist. Next to each task rating column would be a listing of the Soldier's Manual (SM) task number. When crewmembers were found deficient at a given task they could be referred to the appropriate SM for remediation. This was developed and presented to SMEs for review and comment. Most of the SMEs approved of the reference to the SM, but felt that it would be an "over kill" if presented to tank commanders as part of the crew drills. They also indicated a need to know the specific tasks that they would be evaluated on during crew drills evaluation.

Considering the results of the SME review, a second effort was made to produce a crew drills evaluation form useable to both tank commander and platoon leader. After experimenting with several alternatives, it was decided to locate a box (1) next to each of the crewmember activities identified as essential to crew drill accomplishment. This would satisfy two purposes. First, it would insure that both the trainers and evaluators were working from the same "sheet of music." Second, it would eliminate the need to add an additional layer of evaluation forms to an already over-burdened system. Feedback from SMEs who have asked to review the drills indicated that both purposes were met, and that the crew drills should be acceptable to other tank commanders.

The final activity in documenting the crew drills was to present them in such a manner that they would be useable for both tank delivered training and evaluation. Several approaches were tried involving print reduction, type of paper, and paper size. On the basis of these tryouts it was decided that crew drills should be presented on the front and back of a single $8\ 1/2\ x\ 11$ inch sheet of paper with minimum reduction, where necessary. When presented to tank crews for use on board tanks they should be inclosed in a protective plastic cover or laminated to prevent damage.

SUMMARY AND CONCLUSION

The goal of the research was to bridge the gap between individual and tank gunnery crew drills training. To achieve this goal, two major research objectives were formulated. The primary objective was to design a crew drills training approach that would incorporate the concept of dry-fire training in a low cost environment. The secondary objective was to develop a set of prototype tank gunnery crew drills training programs that could be used to determine the feasibility of the collective training design. Both of these research objectives have been achieved with the drills described in this report.

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APPENDIX A. CREW DRILLS FOR M1 GENERAL ABRAMS TANK GUNNERY

TANK GUNNERY CREW DRILLS TRAINING

INTRODUCTION: The key to successful team performance is practice. For example, the top teams in professional sports are those that continuously practice the basic things that make them successful. When they work out, their practice sessions are serious and dedicated to being the best both individually and as a team. They're willing to pay the price so they accept the hard work and the time it takes to get it right. When game time comes around they're ready. They not only know their individual assignments, but they have acquired the team skills and timing necessary to win.

The tank gumnery crew drills are the basic things that your tank crew must practice to be successful in combat. They are the gunnery engagement procedures that your tank crew will most likely perform on the next battlefield and must execute perfectly to win and survive. When the flag drops your tank crew will have to out-maneuver and outshoot an enemy superior in number and capable of blowing you away. If your tank crew hesitates in putting steel on target immediately, almost automatically, they will not survive. To be ready for combat you and your MI tank crew must be totally committed to going the whole nine yards. Under your leadership, they must be willing to practice until everyone has acquired both the individual and team gunnery skills to win.

There is no other answer!

CHARACTERISTICS: There are 11 crew drills considered fundamental to MI Abrams tank gunnery. Each crew drill has a procedures guide which identifies the performance steps crewmembers must make during each phase of an engagement. It also identifies the more critical gunnery steps that can be observed to check-out individual crewmember performance. These tank gunnery crew drills are designed specifically for open hatch operations during daylight and without the use of live ammunition. More realistic battlefield conditions that can be exercised when dry-firing each crew drill are outlined in Table A-1. Specific equipment conditions that must be established prior to crew drills training are presented in Table A-2.

RESPONSIBILITIES: You, the tank commander, are the primary trainer for crew drills. It is your responsibility to provide each crewmember with the training required to successfully perform each of the engagements. Every opportunity, scheduled and unscheduled, must be seized to train your crew. Platoon leaders/sergeants should be looked to for training assistance. However, it is your tank crew and how well they perform in combat will depend entirely on how well you prepared them during training.

TRAINING APPROACH: To accomplish crew drill training, the following approach is recommended:

- 1. Introduce the Crew Drill. State the task to be trained and the performance standards specified in FM 17-12-1. Point out the importance of conducting the crew drill, why it is being trained using dry-fire methods, and how it relates to gunnery performance expected on the battlefield.
- 2. <u>Demonstrate</u>. Talk each crewmember through the tank gunnery procedure using the procedures guide. Show them where their individual performances contribute collectively to the success or failure of the gunnery engagement. Using the asterisked (*) items, show them how a performance step might be included during an engagement.
- 3. Get Set-up. Instruct your crew to enter the tank. When ready, conduct a prepare-to-fire check. Next, select the battlefield condition to be trained (Table A-1), and set-up the equipment (Table A-2). For the purpose of dry-fire training, tell the loader to leave the breech open for loading a "second" round, and to assume a battlesight condition. Tell the gunner to simulate the actual firing of a live main gun round and to announce a round sensing.
- 4. Practice. Issue an appropriate fire command to begin the engagement. Proceed gradually, reviewing each crewmember's individual task performance. When an error is noted that can be easily fixed, provide immediate hands-on instruction. Otherwise, notify him of the deficiency and arrange for remedial training. If more timing and coordination is required between two crewmembers, arrange the time to let them practice. Repeat the engagement as often as necessary to meet the crew drill standards.
- 5. Train For Combat. Increase the difficulty of the task by practicing it under the remaining battlefield conditions identified in Table A-1. Close the hatches, put on protective masks, use manual controls, simulate a threeman crew, and practice what is required when there are weapon system failures.
- 6. Get Certified. Once your tank crew has mastered a given crew drill across all battlefield conditions, contact your platoon leader or sergeant and ask him to certify your tank's readiness. Have him review your performance and record your progress on Table A-1.

STATIONARY TARE STATE UNARY TARGET ENGAGEMENT DRILL PROCEDURES GUIDE

	TANK COMMANDER	 Curitity .		LOADER		DRIVER	=
۱.	Acquire/Identify Target.	Maintain Fire Coute (.yster) Monitor Commands.		Search For Target. *Acquire/Identify Target. *Report Target.		Monitor Displays, Monitor Engine RPM . Monitor Commands.	
2.	Issue Fire Command.	Insure Laser In ARM LASS RTN. Insure FIRE CONTROL MODE Switch In N Insure Announced Anno Is Indexed. Insure GPS MAUNIFI ASSOCIATION 1 (24). Place GUN SELECT In APIN.	ORMAL.	Drop Down Into Turret, Insure Turret Is UMLOCKED/Cleat Insure GUM/TURRET DRIVE In POW		Insure TACTICAL IDLE In ON.	-
з.	Lay Gum For Direction	Look Through GAS.		*Close/Lock Hatch.		Listen For Driving Command.	
4.	Command *DRIVER HOVE OUT, GUNNE TAKE OVER."	Issue Driving Commands.		Insure Path Of Recoil Is Clear.		Release Parking Brakes, Drive Tank Forward,	0
5.	Listen For "DRIVER STOP."	Insure Gun Is Clear Of Tomain, Announce "DRIVER STOP," Look Through GPS.		Swing Ejection Guard REARMARD. Insure ARMED Light Is Lit.		Stop Tank.	
6.	Listen for "UP."	Detect/Recognize Torget. Listen For "UP."		Announce "UP."		Shift To R.	
7.	Listen For "IDENTIFIED."	 Announce "IDENTIFICO."		"Listen For "IDENTIFIED."		Hold Brake Depressed.	
в.	Release Override.	Switch GPS MAGNIFICATION 101,		*Place TURRET BLOMER In ON.		Monitor Displays,	_
9.	Look Through GPS Extension At Target.	Lay Reticle On Target $K(n) \in \mathbb{R}^{n}$		Turn Toward Knee Switch,		Monitor Engine RPM .	
٥.	Commend "FIRE."	Listen For "FIRE."		Listen For "FIRE."		Monitor Commands.	
11.	Listen For "ON THE WAY."	Announce "ON THE WAY."		Listen For "ON THE WAY."			
2.	Monitor Leser Firing.	Push/Release Laser Eurit - 1.		Brace For Recoil.		Brace For Recoil.	
	Verify Firing Status. Brace For Recoil.	Check Range Returns du: Check Multiple Returns du: Check Ready To fire Stabol. Check Possible Faula Symbol. Make Control Lay. Squeeze Firing 1 1996 for					
5.	**Announce Sensing.	 	<u>.</u>	Swing Ejection Guard FORMARD. Insure SAFE Light Is Lit. Press/Hold Knee Switch. Remove Announced Round From Rac Release Knee Switch. Load Gound.	·	Listen For Driving Command.	-
6.	*Issue Subsequent Fire Command: . Command "REEMGAGE," Then Steps 17-22.	*Respond To TC U		*Respond To TC Command: . Do Steps 17-22.		*Respond To TC Commend: . Do Steps 17-22.	
	. Command "CEASE FIRE," Then Steps 24-25.	, Do Steps 23-25		. Do Steps 23-25.		. Do Steps 23-25,	

17.	Listen For "UP."		Listen For "UP."		Insure Path Of Recoil Is Clear.		Honitor Displays.	_
			"Track Target.		Suring Ejection Guard REAMMAND. Insure ARMED Light Is Lit.	ū	Monitor Engine RPM . Monitor Commands.	
					Announce "UP."			
18.	Listen For "ON THE WAY."		Announce "ON THE MAY,"		Listen For "ON THE WAY."			
19.	Monitor Laser Firing.		Push/Release Laser Button(s).		Brace For Racoil.		Brace For Receil.	
20.	Verify Firing Status.		Check Range Return.					
			Check Multiple Returns Bar.					
			Check Ready To Fire Symbol.					
			Check Possible Fault Symbol.					
21.	Brace For Receil,		Make Control Lay.					
			Squeeze Firing Trigger(s).					
		_	*Continue To Track					_
22.	Announce Sensing,		Relay Reticle On Target Aiming Point	. 🗆	Swing Ejection Guard FORWARD.		Listen For Driving Command.	
			Announce Sensing.		Insure SAFE Light Is Lit.			
			Listen For TC Command.		Press/Hold Knee Switch.			
					Remove Announced Round From Rec	k.		
					Release Knee Switch.			
					Load Round.			
					Listen For TC Commend.			
23.	Issue Subsequent Fire Command:		Respond To TC Command:		Respond To TC Command:		Respond To TC Commend:	
	. Command "CEASE FIRE."		.*Release/Reangage Palm Suritches.		.*Place TURRET BLOWER In OFF.		. Prepare To Return To	
			. Place GUN SELECT IN TRIGGER SAFE.		.*Reload Battlesight Round.		Turret-Down Or Alternate Firing Position.	
			. Switch GPS MAGNIFICATION To 3%.					
24.		_	*Check/Adjust MRS.		Check Replenisher Reservoir.		Follow Driving Commands.	_
	Alternate Firing Position.				Remove Spent Casing(s).			
					Resume Target Search.			
25.	Acknowledge Craw Reports.		Report Firing Status.		Report Loading Status.		Report Driving Status.,	

STATIONARY TANK/MOVING TARGET ENGAGEMENT DRILL PROCEDURES GUIDE

	TANK CONHANDER		GUNNER		LOADER		DRIVER	_
1.	Acquire/Identify larget.		Maintain Fire Control System. Monitor Commands.		Search for Target, "Acquire/Identify Target, "Report Target,		Homitor Displays. Homitor Engine RPM . Homitor Commands.	
2.	Issue Fire Commend.	0	Insure Loser In ARM LAST RTM. Insure FIRE CONTROL NODE Switch in M Insure Announced Ammo Is Indexed. Insure GPS MAGNIFICATION In 3X. Place GUM SELECT In MAIN.	SAMAL.	Drop Down Into Turret. Insure Turret Is UNLOCKED/Clear Insure GUN/TURRET DRIVE In POWE		Insure TACTICAL IDLE In ON.	
3.	Lay Sun For Direction.		Look Through GAS.		*Close/Lock Hatch.		Listen For Driving Command.	
4.	Command "DRIVER MOVE OUT, GUMMER TAKE OVER."	0	Issue Driving Commands.		Insure Path Of Recoil Is Clear.		Release Parking Brakes. Orive Tank Forward.	
5.	Listem For "DRIVER STOP,"		Insure Gun Is Clear Of Terrain. Announce "DRIVER STOP." Look Through GPS.	0	Siring Ejection Guard REARMARD. Insure AMMED Light Is Lit.		Stop Tank.	
6.	Listen For "UP."		Detect/Recognize Target. Listen For "UP."		Announce "UP,"	0	Shift To R.	
7.	Listen For "IDENTIFIED."		Announce "IDENTIFIED."		*Listen For "IDENTIFIED."		Hold Brake Depressed.	
8.	Release Override,	0	Switch GPS MAGNIFICATION To 10%.	0	*Place TURRET SLOWER IN ON.		Monitor Displays.	
9.	Look Through GPS Extension At Target.		Lay Reticle On Target Aiming Point. Track Target,	0	Turn Toward Knee Switch.		Monitor Engine RPM .	
10.	Command "FIRE."		Listen for "FIRE."		Listen For "FIRE."		Monitor Commands.	
11.	Listen For "ON THE WAY."		Announce "ON THE WAY."		Listen For "ON THE WAY."			
12.	Monitor Laser Firing.		Push/Release Lawer Button(s).		Brace For Recoll.		Brace For Recoll.	
13,	Verify Firing Status.		Check Range Return. Check Multiple Returns Bar. Check Ready To Fire Symbol. Check Possible Fault Symbol.					
14,	Brace for Recoil.		Make Control Lay. Squeeze Firing Trigger(s). Continue To Track.	0				
15.	*Announce Sensing.		Relay Reticle On Target Aiming Point. Announce Sensing. Listen For TC Command.	0	Swing Ejection Guard FORMARD. Insure SAFE Light Is Lit. Press/Hold Knee Switch. Remove Announced Round From Rac Release Knee Switch. Load Round.	k.	Listen For Driving Command.	
16.	*Issue Subsequent Fire Command: . Command "REENGAGE," Then Steps 17-22.	0	*Respond To TC Command: . Do Steps 17-22.		*Respond To TC Command: , Do Steps 17-22,		*Respond To TC Command: . Do Steps 17-22.	0
	. Command "CEASE FIRE," Then Steps 24-25.		. Do Steps 23-25.		. Do Steps 23-25.		. Do Steps 23-25.	

17.	Listen Per "UP."	eTrack Target.		Insure Path Of Macall Is Clear, Swing Ejection Guard REAMMARD, Insure ARMED Light Is Lit. Annuance "UP."		Monitor Displays. Monitor Engine APM . Monitor Commands.	
18.	Listen For "ON THE WAY."	Announce "ON THE WAY."		Listen For "ON THE MAY."			
19.	Heniter Laser Firing.	Push/Release Laser Button(s).		Brece for Asco11.		Brace For Recoll.	
20.	Varify Firing Status.	Check Range Return, Check Multiple Returns Bar. Check Ready To Fire Symbol. Check Possible Fault Symbol.					
21.	grace for Recell,	Make Control Lay. Squeeze Firing Trigger(s). *Continue To Track.	۵				
22.	Announce Sensing.	Relay Reticle On Target Aloing Point Announce Sansing. Listen For TC Command.	0 0	Suring Ejection Guard FORMARD. [Insure SAFE Light Is Lit. Press/Hold Knee Switch. Remove Announced Round From Rack [Release Knee Switch. Load Round. [Listen For TC Command.		Listen For Driving Command.	
z.	Issue Subsequent Fire Command: , Command "CEASE FIRE."	Respond To TC Command: , "Release/Reengage Palm Switches. , Place BUN SELECT In TRIBGER SAFE. , Switch GPS MAMNIFICATION To 3X.	۵	_	3	Respond To TC Command: . Prepare To Return To Turret-Down Or Alternata Firing Position.	0
24.	Nove To Turret-Down Or Alternate Position.	*Check/Adjust MRS.		Check Replanisher Reservoir, [Remove Spent Casings, Resume Target Search.	<u> </u>	Fallow Driving Commands.	
25.	Acknowledge Crow Reports.	Report Firing Status.		Report Loading Status.		Report Driving Status.	

STATIONARY TANK/MULTIPLE TARGET ENGAGEMENT DRILL PROCEDURES GUIDE

	TANK COMMANDER	GUNNER		LOADER	 DRIVER	_
1.	Acquire/Identify Target.	Maintain Fire Control System.		Search For Target. *Acquire/Identify Target. *Report Target.	Monitor Displays. Monitor Engine RPM . Monitor Commands.	-
2.	lssue Fire Command.	Insure Laser In ARM LAST RTN. Insure FIRE CONTROL MODE Switch In N Insure Announced Ammo Is Indexed. Insure GPS NAGNIFICATION In 3X. Place GUN SELECT In MAIN.	ORMAL.	Drop Down Into Turret. Insure Turret Is UMLOCKED/Clear Insure GUN/TURRET DRIVE In POME	Insure TACTICAL IDLE In ON	
3.	Lay Gun For Direction.	Look Through GAS.		*Close/Lock Hatch.	Listen For Driving Command	
4.	Command "DRIVER MOVE OUT, GUMMER TAKE OVER,"	Issue Driving Commends.		Insure Path Of Recoil Is Clear.	Release Parking Brakes. Drive Tank Forward.	
5.	Listen For "ORIVER STOP."	Insure Gun Is Clear Of Terrain, Announce "DRIVER STOP." Look Through GPS.	0	Swing Ejection Guard REARMARD. Insure ARMED Light Is Lit.	Stop Tank.	C
6.	Listen For "UP."	Detect/Recognize Target. Listen For "UP."		Announce *UP.*	Shift To R.	
1.	Listen For "IDENTIFIED."	Announce "IDENTIFIED, TANK.	•□	*Listen For "IDENTIFIED."	Hold Brake Depressed.	
8.	Release Override.	Switch GPS MAGNIFICATION To 10%.		*Place TURRET BLOWER In ON.	 Monitor Engine RPM.	_
9.	Look Through GPS Extension At Target.	Lay Reticle On Target Aiming Point.		Turn Toward Knee Switch.	Monitor Displays.	
0.	Command "FIRE."	Listen For "FIRE."		Listen For "FIRE."	Monitor Commends.	
11.	Listen for "ON THE WAY."	Announce "ON THE WAY."		Listen For "ON THE WAY."		
2.	Monitor Laser Firing.	Push/Release Laser Button(s).		Brace For Recoil.	Brace For Recoil.	
3.	Verify Firing Status.	Check Range Return. Check Multiple Returns Bar. Check Ready To Fire Symbol. Check Possible Fault Symbol.				
4.	Brace For Recoll.	Make Control Lay. Squeeze Firing Trigger(s).				
5. ·	*Announce Sensing.	Relay Reticle On Target Aiming Point. Announce Sensing. Listen For TC Command.		Swing Ejection Guard FORWARD. Insure SAFE Light Is Lit. Press/Hold Knee Switch. Remove Announced Round From Rack Release Knre Switch. Load Round.	 Listen For Driving Command	
6	*Issue Subsequent Fire Command: 🗀	*Respond To TC Command:			*Paragraph To TC Comment	_
	. Command "REENGAGE," Then Steps 19, 22-27.	. Do Steps 19, 22-27.	_	*Respond To TC Command: . Do Steps 17-27.	*Respond To TC Commend: . Do Steps 17-27.	
	Command "DRIVER BACK UP STOP," Then Steps 30, 17-27.	. Do Steps 30, 18-27.		. Do Steps 30, 18-27.	. Do Steps 30, 18-27.	
	. Command "(Next Target)," Then Steps 18-27,	. Do Steps 17-27,		. Do Steps 17-27.	. Do Steps 17-27.	
	. Command "CEASE FIRE," Then Steps 29-31.	. Do Steps 28-29, 31.		. Do Steps 28-29, 31.	. Do Steps 28-29, 31.	

17.	issue fire Command.	Release/Reengage Palm Switches.		Insure Path Of Recoil Is Clear.		Listen For Driving Command	
18.	"Lay Gum for Direction.	Detect/Recognize Target.		Swing Ejection Guard REARWARD,		Monitor Displays.	
19.	Listen For "UP."	Listen For "UP."		Announce "UP."		Monitor Engine RPM .	
20.	Listen For "IDENTIFIED."	Announce "IDENTIFIED."		Listen For "TOENTIFIED."		Monitor Commends.	
		Lay Reticle On Target Aiming Point.					
		*Treck Target.					
21.	Command "FIRE."	Listen For "FIRE."		Listen For "FIRE."			
22.	Listen For "ON THE WAY."	 Announce "ON THE WAY,"	0	Listen For "ON THE WAY."			•
23.	Homitor Laser Firing.	. Push/Release Laser Button(s).		Brace For Recoil,		Brace For Recoil,	
24.	Yerify Firing Status.	Check Range Return.					
		Check Hultiple Returns Bar.					
		Check Ready To Fire Symbol.					
		Check Possible Fault Symbol.					
25.	Brace for Recoil.	Make Control Lay.					
		Squeeze Firing Trigger(s).					
		 *Continue To Track.					_
26.	Announce Sensing.	Relay Reticle On Target Aiming Point		Swing Ejection Guard FORMARD.		Listen For Driving Command	
		Announce Sensing.		Insure SAFE Light Is Lit.			
		Listen for TC Command.		Press/Hold Knee Switch.			
				Resove Announced Round From Rec	٠O		
				Release Knee Switch.			
				Load Round.			
				Listen For TC Command.	_		
27 .	Issue Subsequent Fire Command:	Respond To TC Commend:		Respond To TC Commend:		Respond To TC Command:	
	. Repeat Step 16.	 . Repeat Step 16.		. Repeat Step 16.		Repost Step 16.	_
28.	Command "CEASE FIRE."	Release/Reengage Palm Switches.		"Place TURNET BLOWER IN OFF.		Prepare To Return To Turre Down Or Alternate Firing	t-
		Place GUN SELECT IN TRIGGER SAFE.		*Reload Battlesight Round.		Position.	
		Switch GPS MAGNIFICATION to 3X.					
29.	Move To Turret-Down Position.	*Check/Adjust MRS.		Check Replemisher Reservoir,		Back Up Until TC Commands "DRIVER STOP."	
30.	"DRIVER LEFT (REGIT), SEEK	Look Through GAS.		Remove Spent Casing.		Drive To Alternate (Hull- Down) Position.	0
	ALTERNATE POSITION. GUNNER TANK, TAKE OVER."	Insure Gun Is Clear Of Terrein.				Listen For "DRIVER STOP."	
		Announce "DRIVER STOP."					_
		Look Through GPS.				Stop Tank. Shift To R.	
31.	Acknowledge Crew Regorts.	Report Firing Status.		Recort Loading Status.		Report Onfring Status.	

STATIONARY TANK/SIMULTANEOUS TARGET ENGAGEMENT DRILL PROCEDURES GUIDE

	TANK COMMANDER	GUNNER		LOADER		DRIYER	_
1.	Acquire/identify Target.	Maintain Fire Control System.		Search For Target. *Acquire/Identify Target. *Report Target.		Monitor Displays. Monitor Engine RPM . Monitor Commands.	-
2.	Issue Fire Command.	Insure Laser In ARM LAST RTH. Insure FIRE CONTROL MODE Switch In a Insure Announced Ammo Is Indexed. Insure GPS MAGNIFICATION In 3X. Place GUN SELECT In MAIN.	HORMAL.	Drop Down Into Turret. Insure Turret Is UNLOCKED/Clear Insure GUM/TURRET DRIVE In POME		Insure TACTICAL IDLE In ON	-
3.	Lay Gun For Direction.	_		*Close/Lock Hetch.		Listen For Driving Command	
4.	Command "DRIVER MOVE OUT, GURBLER TAKE OVER."	Issue Driving Commands.	0	Insure Path Of Recoil Is Clear.		Release Parking Brakes. Drive Tank Forward.	
5.	Listen For "DRIVER STOP."	Insure Gun Is Clear Of Terrain. Announce "DRIVER STOP." Look Through GPS.	0	Swing Ejection Guard REARMARD. Insure ARMED Light Is Lit.		Stop Tank.	
6.	Listen for "UP."	Detect/Recognize Target. Listen For "UP."		Announce "UP."		Shift To R.	
7.	Listen For "IDENTIFIED."	Announce "IDENTIFIED,"		*Listen For *IDENTIFIED.*		Hold Brake Depressed.	
8.	Release Override.	Switch GPS MAGNIFICATION To TOX.		*Place TURRET BLOWER In ON.		Monitor Displays.	-
9.	Move To Cal. 50.	Lay Reticle On Target Aiming Point,		Turn Toward Knee Switch,		Monitor Engine RPM .	
10.	Command "FIRE AND ADJUST, CALIBER FIFTY."	Listen For "FIRE."		Listen For "FIRE."		Monitor Commands.	
11.	"Listen for "ON THE WAY."	Announce "ON THE MAY."		Listen For "ON THE WAY."			
12.	Insure MANUAL/POWER Lever In POWER,	Push/Release Laser Button(s).		Brace for Recoil.		Brace For Recoil.	
13.	Place Cal. 50 In FIRE.	Check Mange Return. Check Multiple Returns Bar. Check Ready To Fire Symbol. Check Possible Fault Symbol.					
14.	*Brace For Recoil.	Make Control Lay. Squeeze Firing Trigger(s).					
15.	Estimate Range To Cal. 50 Target.	Relay Reticle On Target Aiming Point Announce Sensing.	0	Swing Ejection Guard FORWARD. Insure SAFE Light Is Lit. Press/Hold Knee Switch. Remove Announced Round From Rac Release Knee Switch. Load Round.	_	Listen For Driving Command.	
6.	Lay Cal .50 On Target.	Take Command Actions:	0	*Respond To TC/Gunner Command:		*Respond To TC/Gunner Commands:	
		. Fire Adjust, Then Steps 18-22,		. Do Steps 18-22.		. Do Steps 17-22.	
		. Announce "CEASE FIRE," Then Steps 17, 23-25.		. Do Steps 23-25.		. Do Steps 23-25.	

17.	Fire 10-15 Round Burst.		Lay On Cal. 50 Target. Assist TC In Fire Adjustment. Listen For "TC COMPLETE."	000	Assist TC/Cal. 50 Operation. Listen For "TC COMPLETE."		Monitor Commands.	
18.	Sense Tracer Impact.		Listen For "UP." "Treck Target.		Insure Path Of Recoil Is Clear. Swing Ejection Guard REARMARD, Announce "UP."	00	Monitor Displays. Monitor Engine RPM . Monitor Commands.	
19.	Adjust Fire.		Announce "ON THE WAY." Push/Release Laser Button(s).	0	Listem For "ON THE WAY." Brace For Recoil.		Brace For Recoll.	
20.	Announce "TC COMPLETE."		Check Range Return. Check Multiple Returns Bar. Check Randy To Fire Symbol. Check Possible Fault Symbol.					
21.	*Place Cal. 50 In SAFE.		Make Control Lay. Squeeze Firing Trigger(s). *Continue To Track.	0				
22.	*Announce Sensing.		Relay Reticle On Target Aiming Point, Announce Sensing, Listen For TC Commend,	0	Suing Ejection Guard FORMARD, Insure SAFE Light Is Lit, Press/Hold Knee Switch. Remove Announced Round From Rac Release Knee Switch. Load Round. Listen For TC Commend.	ە ق	Listen For Driving Command.	
23.	Issue Subsequent Fire Command: . Command "CEASE FIRE."		Respond To TC Command: .*Release/Reengage Palm Switches Place GUM SELECT In TRIGGER SAFE Switch GPS MAGNIFICATION To 3X.	0 0	Respond To TC Command: , "Place TURRET BLOMER In OFF. . "Reload Battlezight Round.	۵	Respond To TC Command: Prepare To Return To Turret Down Or Alternate Firing Position.	0
24.	Nove To Turret-Down Or Alternate Position.	0	*Check/Adjust MRS.		Check Replenisher Reservoir, Remove Spent Casings, Resume Tartet Search.	0	Follow Driving Commands.	
34	Astronilados Core Bernete		Benert Finise Chatus		Benny Loading Status		Pennet Defining Status	

MOVING TANK/STATIONARY TARGET ENGAGEMENT DRILL PROCEDURES GUIDE

	TANK COMMANDER		GUNNER		LOADER		DRIYER	
1.	Acquire/Identify Target.		Search For Target. *Acquire/Identify Target. *Report Target.		Search for Target. *Acquire/Identify Target, *Report Target.		Drive Tactically, *Acquire/Identify Target, *Report Target.	
2.	Issue Fire Command.	0	Insure Laser In ARM LAST RTM. Insure FIRE CONTROL MODE Switch In NO Insure Announce Ammo Is Indexed. Insure GPS MAGNIFICATION In 3X. Place GUN SELECT In MAIN.	RHAL.	Drop Down Into Turret. Insure Turret Is Unlocked/Clear Insure GUN/TURRET DRIVE In POME		Listen For Driving Command.	
3.	*Direct Oriver Toward Target.		Look Through GPS.		*Close/Lock Hatch.		Follow Driving Command.	0
4.	Lay Gun For Direction.		Detect/Recognize Target.		Insure Path Of Recoil Is Clear. Swing Ejection Guard REARMARD. Insure ARMED Light Is Lit.		Detect/Recognize Target. Steer Toward Target,	
5.	Listen For "UP."		Listen For "UP."		Announce "UP."		Search For Hull-Down Position.	
6.	Listen For "IDENTIFIED."		Announce "IDENTIFIED."		*Listen for "IDENTIFIED."		Listen For Driving Command.	
1.	Release Override.	0	Switch GPS MAGNIFICATION To 10%.	0	*Place TURRET BLOWER In ON.		*Continue Search For Hull- Down Position.	
8.	Look Through GPS EXTENSION.		Lay Reticle On Target Aiming Point.		Turn Toward Knee Switch.		Establish Steady Speed/ Direction.	
			Track Target. Listen For Driver Alerts.		Listen for Driver Alerts.		Alert Crew Of Obstacles.	
9.	Command "FIRE."		Listen For "FIRE."		Listen for "FIRE."		Monitor Commands.	
0.	Listen For "ON THE WAY."		Announce "ON THE MAY."		Listen for "ON THE WAY,"		Maintain Steady Speed/ Direction,	
١.	Monitor Laser Firing.	0	Push/Release Laser Button(s).		Brace For Recoil.		Brace For Recoil.	
2.	Verify Firing Status.		Check Range Return. Check Multiple Returns Bar. Check Ready To Fire Symbol. Check Possible Fault Symbol.					
3.	Brace For Recoll.		Make Control Lay, Squeeze Firing Trigger(s). Continue To Track,					
4.	*Announce Sensing.		Relay Reticle On Target Aiming Point. Announce Sensing. Listen For TC Command.	0	Swing Ejection Guard FORMARD. Insure SAFE Light Is Lit. *Place GUN/TURRET DRIVE In EL UN Press/Mold Knee Switch. Remove Announced Round From Rac Release Knee Switch.	_	*Round Sense. Listen For Driving Command.	
				_	Load Round.			
5.	*Issue Subsequent Fire Command: . Command "REENGAGE," Then Steps 16-22,		*Respond To TC Command: . Do Steps 16-22.		*Respond To TC Command: . Do Steps 16-22.		*Respond To TC Command: . Do Steps 16-22.	
	. Command "CEASE FIRE," Then Steps 24-25.		. Do Steps 23-25.		. Do Steps 23-25.		. Do Steps 23-25.	

16.	Listen for "UP."		Listem for "UP."	Insure Path Of Recoil Is Clear.		*Continue Search For Hull- Down Position.	
			Listen for Driver Alerts.	Swing Ejection Guard REARMARD.		Alert Crew Of Obstacles.	
			Track Target.	Insure AMMED Light Is Lit.			
				Announce "UP."			
17.	Liston for "ON THE WAY."		Announce "ON THE WAY,"	Listen For "ON THE WAY."		Maintain Steady Speed/ Direction.	
18.	Monitor Laser Firing.		Push/Release Laser Button(s).	Brace For Recoil.		Brace For Recoil.	
19.	Verify Firing Status.		Check Range Return.				
			Check Multiple Returns Bar.				
			Check Ready To Fire Symbol.				
			Check Possible Fault Symbol.				
20.	Brace For Recoil.		Make Control Lay.				
			Squeeze Firing Trigger(s).				
			Continue To Track,				
21.	Announce Sensing.	_	Relay Reticle On Target Aiming Point	Suring Ejection Guard FORMARD.		*Round Sense.	_
			Announce Sansing.	Insure SAFE Light Is Lit.		Listen For Oriving Command.	
			Listen For TC Command.	Press/Hold Knee Switch.			
				Remove Announced Round From Rac	*O		
				Release Knee Switch.			
				Load Round.			
				Listen For TC Command.			
22.	issue Subsequent Fire Command:		Respond To TC Commend:	Respond to TC Commend:		Respond To TC Command:	
	, Repeat Step 15.		. Repeat Step 15.	, Repeat Step 15.		. Repeat Step 15.	
23.	Command "CEASE FIRE."		*Release/Reengage Palm Switches.	 *Place TURRET BLOWER IN OFF.		Drive Tactically.	
			Place GUN SELECT IN TRIGGER SAFE.	PPIACE GUN/TURRET DRIVE IN POWER	ED.		
			Switch GPS MAGRIFICATION to 3%.	*Reload Bettlesight Round.			
24.	*Issue Oriving Command.		Continue To Scan.	Check Replanisher Reservoir,		Fellow Driving Command.	
			Listen For Oriver Alerts.	Remove Spent Casings.		Alert Crew Of Obstacles.	
			*Check/Adjust MRS.	Resume Target Search.		Adjust Speed/Direction.	
25.	Acknowledge Crew Reports.		Report Firing Status.	Report Loading Status.		Report Oriving Status.	

MOVING TANK/MOVING TARGET ENGAGEMENT DRILL

	TANK COMMANDER		GUNNER		LOADER	DRIVER	
١.	Acquire/Identify Target.		Search For Target.		Search For Target.	Drive Tactically.	
			*Acquire/Identify Target.		*Acquire/Identify Target.	*Acquire/Identify Target.	
			*Report Target.		*Report Target.	*Report Target.	
2.	Issue Fire Command.		Insure Laser In ARM LAST RTH.		Drop Down !nto Turret.	Listen For Driving Command.	
			Insure FIRE CONTROL MODE Switch In N	IORMAL.	Insure Turret Is Clear.		
			Insure Announce Ammo Is Indexed.		Insure GUN/TURRET DRIVE In POWERED.		
			Insure GPS MAGNIFICATION IN UX.				
			Place GUN SELECT in MAIN.				
3.	*Birect Driver Toward Target.		Look Through GPS.		*Close/Lock Hatch.	Follow Driving Command.	
4.	Lay Gun For Direction.		Detect/Recognize Target.		Insure Path Of Recoil Is Clear.	Detect/Recognize Target.	
		_			Owleg Ejection Guard REARWARD.	Steer Toward Target,	
					insure ARMED Light Is Lit.	•	
5.	Listen For "UP."		Listen For "UP."		Announce "liP."	Search For Hull-Down Position.	
6.	Listen For "IDENTIFIED."		Announce "IDENTIFIED."		*Listen For "IDENTIFIED."	Listen For Driving Command.	
7.	Release Override.		Switch GPS MAGNIFICATION To 10".		*Place TURRET BLOWER In ON.	*Continue Search For Hull- Down Position.	
8.	Look Through GPS EXTENSION At Target.		Lay Reticle On larget Aiming Point.		Turn Toward Knee Switch.	Establish Steady Speed/ Direction.	
			*Track Target.		Listen For Driver Alerts.	Alert Crew Of Obstacles.	
			Listen for Driver Alerts.				
9,	Command "FIRE."		Listen For "FIRE."		Listen For "FIRE."	Monitor Commands.	
10.	Listen For "ON THE WAY."		Announce "DN THE WAY,"		Listen For "ON THE WAY."	Maintain Steady Speed/ Direction.	
11.	Monitor Laser Firing.		Push/Release Laser Button(s),		Brace For Recoil.	Brace For Recoil.	
12.	Verify Firing Status.		Check Range Return.				
			Check Multiple Returns Bar.				
			Check Ready To Fire Symbol.				
			Check Possible Fault Symbol.				
13.	Brace for Recoil.		Make Control Lay.				
			Squeeze Firing Trigger(s).				
			*Continue To Track.				
14.	*Announce Sensing.		Relay Reticle Co. Larget Aiming Lount		Switch Light tion Guard FORMARD.	*Round Sense.	
			Announce Sensing.		lastro CAFF Light Is Lit.	Listen For Driving Compand.	
			Listen For IC Command.		MODING TOMES TORING IN EL UNCPL.		
					Emess/Mold Knew Switch.		
					Penovn Announced Round From Rack		
					Release Knee Switch.		
					trau Roged.		
15.	*Issue Subsequent Fire Command:		*Respond To TC Command:		*Respond to TC Command:	*Respond To TC Command:	
	- Command "REENGAGE," Then Steps 16-22.		. Jc Steps 16-22.		. Do Steps 16-22.	. Do Steps 16-22.	
	. Command "CEASE FIRE," Then Steps 24-25.		. Do Steps 23-25.		. In Stene 23-25.	. Do Steps 23-25.	
						 	

16.	Listen For "UP."		Listen For "UP."		Insure Path Of Recoil Is Clear.		*Continue Search For Hull- Down Position.	
			Listen For Driver Alerts. *Track Target.		Swing Ejection Guard REARMARD. Announce "UP."		Alert Crew Of Obstacles.	
17.	Listen For "ON THE WAY."		Announce "ON THE MAY,"		Listen For "ON THE MAY."		Maintain Steady Speed/ Direction.	
18.	Monitor Laser Firing.		Push/Release Laser Button(s).		Brace For Recoil.		Brace For Recoil.	
19.	Verify Firing Status.		Check Range Return, Check Multiple Returns Bar, Check Ready To Fire Symbol, Check Possible Fault Symbol,					
20.	Brace For Recoil.		Make Control Lay. Squeeze Firing Trigger(s). *Continue To Track					
21.	Announce Sensing.	0	Relay Reticle On Target Aiming Point, Announce Sensing, Listen For TC Command,	00	Insure SAFE Light Is Lit. Press/Hold Knee Switch. Remove Announced Round From Rack. Release Knee Switch.	0	*Round Sense. Listen For Oriving Command.	
22.	Issue Subsequent Fire Command: . Repeat Step 15.	0	Respond To TC Command: . Repeat Step 15.		Respond To TC Command: [Respond To TC Command: . Repeat Step 15.	0
23.	Command "CEASE FIRE."	0	*Release/Reengage Palm Switches. Place GUN SELECT In TRIGGER SAFE. Switch GPS MAGNIFICATION To 3X.	000	*Place TURRET BLOWER In OFF. *Place GUN/TURRET DRIVE In POWERED *Reload Battlesight Round.		Drive Tactically.	
24.	*Issue Driving Commend		Continue To Scan. Listen For Driver Alerts. *Check/Adjust MRS.		Check Replenisher Reservoir. [Remove Spent Casings. Resume Target Search.	-	Follow Driving Command. Alert Crew Of Obstacles. Adjust Speed/Direction.	0
25.	Acknowledge Crew Reports.		Report Firing Status.		Report Loading Status.		Report Driving Status.	

MOVING TANK/MULTIPLE TARGET ENGAGEMENT DRILL

	TANK COMMANDER		GUNNER	_	LOADER	_	DRIVER	:
1.	Acquire/Identify Target.		Search For Target. *Acquire/Identify Target. *Report Target.		Search for Target. *Acquire/Identify Target. *Report Target.		Drive Tactically. *Acquire/Identify Target. *Report Target.	
2.	Issue Fire Command.		Insure Laser In ARM LAST RTN. Insure FIRE CONTROL MODE Seitch in M Insure Announce Ammo Is Indexed. Insure GPS MAGNIFICATION In 3X. Place GUN SELECT In MAIN.	DRMAL.	Drop Down Into Turret. Insure Turret Is Clear. Insure GUN/TURRET DRIVE In POMER	ED.	Listen For Driving Command.	
3.	*Direct Driver Toward Target.		Look Through GPS.		*Close/Lock Hatch.		Follow Driving Command.	
4.	Lay Gun For Direction.		Detect/Recognize Target.		Insure Path Of Recoil Is Clear. Swing Ejection Guard REARWARD. Insure ARMED Light Is Lit.	0	Detect/Recognize Target. Steer Toward Target,	0
5.	Listen For *UP."		Listen For "UP."		Announce "UP."		Search For Hull-Down Position.	
6.	Listen For "IDENTIFIED."		Announce "IDENTIFIED, TANK."	. 🗆	*Listen for "IDENTIFIED."		Listen For Driving Command.	
7.	Release Override.		Switch GPS MAGNIFICATION To TOX.	0	*Place TURRET BLOWER In ON.		*Continue Search For Hull- Down Position.	
8.	Look Through GPS EXTENSION At Target.		Lay Reticle On Target Aiming Point,		Turn Toward Knee Switch.		Establish Steady Speed/ Direction.	
		_	Track Target. Listen For Driver Alerts.		Listen For Driver Alerts.		Alert Crew Of Obstacles.	
9.	Command "FIRE."		Listen For "FIRE."		Listen For "FIRE."		Monitor Commands.	
10.	Listen For "ON THE WAY."		Announce "ON THE WAY."		Listen For "ON THE WAY."		Maintain Steady Speed/ Direction,	
11.	Monitor Laser Firing,		Push/Release Laser Button(s).		Brace for Recoil.		Brace For Recoil.	
12.	Verify Firing Status.		Check Range Return. Check Multiple Returns Bar. Check Ready To Fire Symbol. Check Possible Fault Symbol.					
13,	Brace For Recoil.		Make Control Lay. Squeeze Firing Trigger(s). Continue To Track.	0				
14.	*Announce Sensing.		Relay Reticle On Target Aiming Point. Announce Sensing. Listen For TC Command.		Insure SAFE Light Is Lit. *Place GUN/TURRET DRIVE In EL UNC Press/Hold Knee Switch. Remove Announced Round From Rack Release Knee Switch.		*Round Sense. Listen For Driving Command.	
15.	*Issue Subsequent Fire Command:		*Respond To TC Command:		*Respond To TC Command:		*Respond To TC Command:	
	. Command "REENGAGE," Then Steps 19, 22-27,		. Do Steps 19, 22-27.		. Do Steps 16-20, 22-27.		. Do Steps 20, 22-27.	
	. Command "(Next Target)." Then Steps 16-27,		. Do Steps 16-27.		. Do Steps 16-27.		. Do Steps 16-27.	
	. Command "CEASE FIRE," Then Steps 29-30.		. Do Steps 28-30.		. Do Steps 28-30.		. Do Steps 28-30.	

16.	Issue Fire Command.		Release/Reengage Palm Switches.		Insure Path Of Recoil Is Clear.		Listen For Driving Command	•
17.	*Direct Driver Toward Target.		Scan Target Area.		Swing Ejection Guard REARMARD.		Follow Driving Command.	
18.	*Lay Gus For Direction.		Detect/Recognize Target.		Insure ARMED Light Is Lit.		Steer Toward Target.	
19.	Cistan For "UP."		Listen For "UP."		Announce "UP."		Establish Steedy Speed/ Direction.	0
20.	Listen For "IDENTIFIED."		Announce "IDENTIFIED."		Listen For "IDENTIFIED."		Search For Hull-Down Position,	
			Lay Reticle On Target Aiming Point. Track Target. Listen for Oriver Alerts.		Listen for Driver Alerts.		Alert Crew Of Obstacles.	
21.	Command "FIRE."		Listen for "FIRE."		Listen For "FIRE."		Monitor Commands.	
22.	Listen For "ON THE WAY."		Announce "ON THE WAY."		Listen For "ON THE WAY."		Maintain Steedy Speed/ Direction.	
23.	Monitor Laser Firing.		Push/Release Laser Button(s).		Brace For Recoil.		Brace For Recoil.	
24.	Verify firing Status.		Check Range Return. Check Multiple Peturns Bar. Check Keedy To Fire Symbol. Check Possible Fault Symbol.					
25.	Brace For Recoil.		Make Control Lay. Squeeze Firing Trigger(s). Continue To Track.	00				
26.	Announce Sensing.		Relay Reticle On Target Aiming Point. Announce Sensing. Listen For TC Command.	0 0	Swing Ejection Guerd FORMARD. Insure SAFE Light Is Lit. Press/Mold Knee Switch. Remove Announced Round From Rac Release Knee Switch. Load Round. Listen For TC Command.		*Round Sense. Listen For Driving Command	
27.	Issue Subsequent Fire Commend: . Repeat Step 15.	0	Respond To TC Command: . Repeat Step 15.		Respond To TC Command: . Repeat Step 15.		Respond To TC Command: . Repeat Step 15.	
28.	Commend "CEASE FIRE."	0	Release/Reengage Palm Switches. Place GUN SELECT In TRIGGER SAFE. Switch GPS MAGNIFICATION To 3X.	000	*Place TURRET BLOMER In OFF. *Place GUN/TURRET DRIVE In POMER *Reload Battlesight Round.	RED.	Drive Tactically,	-
29.	*Issue Driving Command.		Continue To Scan. Listen For Driver Alerts. *Check/Adjust MRS.		Check Replenisher Reservoir, Remove Spent Casings, Resume Target Search.		Follow Driving Commend. Alert Crew Of Obstacles. Adjust Speed/Direction.	0
30.	Acknowledge Crew Reports.		Report Firing Status.		Report Loading Status.		Report Oriving Status.	

DEGRADED MODE TARGET ENGAGEMENT DRILL PROCEDURES GUIDE

	TANK COMMANDER		GUNNER		LOADER	DRIVER	
١.	Acquire/Identify Target.		Search for Target. *Acquire/Identify Target. *Report Target.		Search For Target. *Acquire/Identify Target. *Report Target.	Drive Tactically. *Acquire/Identify Target. *Report Target.	
2.	Issue Fire Command,		Insure Laser In SAFE. Insure F.AE CONTROL MODE In NORMAL. Insure Announce Ammo Is Indexed. Insure GPS MAGNIFICATION In 3X. Place GUN SELECT In MAIN.		Drop Down Into Turret. Insure Turret Is Unlocked/Clear. Insure GUN/TURRET DRIVE In POMERED.	Listen For Driving Command	
3.	*Direct Driver Toward Target.		Look Through GPS.		*Close/Lock Hatch.	Follow Driving Command.	
4.	Lay Gun For Direction.		Detect/Recognize Target.		Insure Path Of Recoil Is Clear. Swing Ejection Guard REARMARD. Insure ARMED Light Is Lit.	Detect/Recognize Target. Steer Toward Target.	
5.	Listen For "UP."		Listen For "UP."		Announce *UP.*	Search For Hull-Down Position.	
6.	Listen For "IDENTIFIED."		Announce "IDENTIFIED."		*Listen For *IDENTIFIED."	Listen For Driving Command	
7.	Release Override.		Switch GPS MAGNIFICATION To 10X.		*Place TURRET BLOMER In ON.	*Continue Search For Hull- Down Position.	_
8.	Depress MANUAL RANGE BATTLE SGT Button.		Lay Reticle On Target Center Of Mass	s. 🗆	Turn Toward Knee Switch.	Establish Steady Speed/ Direction.	
9.	Look Through GPS Extension At Target.		Track Target. Apply Manual Lead. Listen For Driver Alerts.		Listen For Driver Alerts.	Alert Crew Of Obstacles.	
0.	Command "FIRE,"		Listen for "FIRE."		Listen For "FIRE."	Monitor Commands.	
11.	Listen For "ON THE WAY."		Announce "ON THE WAY."		Listen for "ON THE WAY."	Maintain Steady Speed/ Direction.	
12.	Brace For Recoil.		Make Control Lay. Squeeze Firing Trigger(s). Continue To Track.	0	Brace For Recoil.	Brace For Recoil,	
13.	*Announce Sensing.		Kelay Reticle On Target Aiming Point. Announce Sensing. Listen For TC Command.	0	Swing Ejection Guard FORMARD. Insure SAFE Light Is Lit. *Place GUN/TURRET DRIVE In EL UNCPL. Press/Hold Knee Switch. Remove Battlesight Round From Rack [Release Knee Switch.	Listen For Driving Command	i.
					Load Round.	3	
14.	*Issue Subsequent Fire Command	: 🗆	*Respond To TC Command:		*Respond To TC Command:	*Respond To TC Command:	C
	. Fire Adjust, Then Steps 15-19.		. Apply TC Corrections, Then Steps 15-19.		. Do Steps 15-19.	. Do Steps 15-19.	
	. Let Gunner Adjust Fire, Then Steps 15-19.		. Fire Adjust, Then Steps 15-19.		. Oo Steps 15-19.	. Do Steps 15-19.	
	. Command "CEASE FIRE," Then Steps 21-22.		. Do Steps 20-22.		. Oo Steps 20-22.	. Do Steps 20-22,	

13.	Listen for "UP."		Listen for "UF."	Insure Path Of Recoil Is Clear.		Down Position.	
			Listen For Oriver Alerts.	Suring Ejection Guard REARMAND.		Alert Crow Of Obstacles.	
			Track Target.	Announce "UP."			
16.	Listen For "ON THE WAY."		Announce "ON THE WAY."	Listen For "ON THE WAY."		Maintain Steady Speed/ Direction.	0
17.	Brace For Recoil.		Make Control Lay.	Brace For Recoil.		Brace For Recoll.	
			Squeeze Firing Trigger(s).				
			Continue To Track.				
18.	Announce Sensing.	σ.	Relay On Target Aiming Point.	Swing Ejection Guard FORMAND.		*Round Sense.	-
			Announce Sensing.	Insure SAFE Light Is Lit.		Listen For Driving Command	J.
			Listen For TC Command.	Press/Hold Knee Switch.			
				Remove Bettlesight Round From Ra	ck.		
				Release Knee Switch.			
				Load Round.			
				Listen For TC Command.			
19.	Issue Subsequent Fire Command:		Respond To TC Command:	Respond To TC Command:		Respond To TC Command:	
	. Repeat Step 14.		. Repeat Step 14.	. Repeat Step 14.		, Repeat Step 14,	
20.	Command "CEASE FIRE."		*Release/Reengage Palm Switches.	 "Place TURRET BLOWER In OFF.		Orive Tactically.	_
			Place GUN SELECT In TRIGGER SAFE.	*Place GUN/TURRET DRIVE IN POMERE	0.		
			Switch GPS MAGNIFICATION To 3X.	*Reload Battlesight Round.			
21.	*Issue Driving Command.		Continue To Scan.	Check Replemisher Reservoir.		Follow Driving Command.	
			Listen For Oriver Alerts.	Remove Spent Casings.		Alert Crew Of Obstacles.	
			*Check/Adjust MRS.	Resume Target Search.		Adjust Speed/Direction.	
22.	Acknowledge Crew Reports.		Report Firing Status.	Report Loading Status.		Report Driving Status.	

COAX TARGET ENGAGEMENT DRILL

	TANK COMMANDER		GUNNER		LOADER		DRIVER	-
1.	Acquire/Identify Target.		Search For Targets. *Acquire/Identify Target. *Report Target.		Search For Targets. *Acquire/Identify Target. *Report Target.		Search For Target. *Acquire/Identify Target. *Report Target.	-
2.	Issue Fire Command.	0	Insure Laser In ARM LAST RTM. Insure FIRE CONTROL MODE In NORMAL. Insure GPS MAGNIFICATION In 3X. Place Coax Safety In F. Place GUN SELECT In COAX.		*Drop Down Into Turret. Insure Turfet Is Unlocked/Clear *Close/Lock Hatch.	•	Listen For Driving Command.	-
3.	*Direct Driver Toward Target.		Look Through GPS.		Insure TURRET BLOWER Is Operati	ng.	Follow Driving Command.	
4.	Lay Gun For Direction.		Detect/Recognize Target.		Detect/Recognize Target.		Detect/Recognize Target. *Steer Toward Target.	
5.	Listen For "UP."		Listen For "UP."		Announce "UP."		*Search For Hull-Down Positions.	
6.	Listen For "IDENTIFIED."		Announce "IDENTIFIED."		*Listen For "IDENTIFIED."		Listen For Driving Commands	i.
7.	Release Override.		*Switch GPS MAGNIFICATION To lox.		Acquire/Identify Target.		*Continue Search For Hull- Down Positions.	-
8.	Look Thru GPS EXTENSION At Target.		Lay Reticle On Front Center Mass Of Target. Track Target. Listen For Driver Alerts.	_ _	Listen For Driver Alerts,		Maintain Steady Speed/ Direction. Alert Crew Of Obstacles.	<u> </u>
9.	Command "FIRE,"		Listen For "FIRE."		Listen For "FIRE."		Monitor Displays.	
10.	Listen For "ON THE WAY."		Announce "ON THE WAY."		Listen For "ON THE WAY."		Monitor Commands.	
11.	Monitor Laser Firing.		Push/Release Laser Button(s),					
12.	Verify Firing Status.		Check Range Return. Check Multiple Returns Bar. Check Ready To Fire Symbol. Check Possible Fault Symbol.					
13.	Observe Tracer Impact.		Release/Reengage Palm Switches, Fire 20-25 Round Burst In Z Pattern. Continue To Track.		Observe Tracer Impact. Monitor Ammo Feed.		*Observe Tracer Impact.	
14.	*Announce Sensing.		*Announce Sensing. Listen For TC Command.		*Round Sense. Listen For TC Command.		*Round Sense. Listen For Driving Command.	-
15.	*Issue Subsequent Fire Command: . Fire Adjust, Then Repeat Steps 13-15.		Respond To TC Command: . Apply TC Corrections, Then Repeat Steps 13-15,		Respond to TC Command: . Repeat Steps 13-15.		Respond To TC Command: . Repeat Steps 13-15.	
	. Let Gunner Adjust Fire, Then Repeat Steps 13-15.		. Adjust Fire, Then Repeat Steps 13-15.		. Repeat Steps 13-15.		, Repeat Steps 13-15.	
	. Commend "CEASE FIRE," Then Steps 17-18.		. Do Steps 16-18.		. Do Steps 16-18.		. Do Steps 16-18.	_
16.	Command "CEASE FIRE."		*Release/Reengage Palm Switches. Place GUN SELECT In TRIGGER SAFE. Place COAX Safety In S.	0	Insure TURRET BLOWER Goes Off,		Continue To Drive Tactically,	
17.	Pissue Driving Command.		Continue To Scan. Listen for Oriver Alerts. *Check/Remove Spent Brass.		Reload Coax Ammo Box, Listen For Driver Alerts, Resume Target Search,		Follow Driving Command. Adjust Speed/Direction. Alert Crew Of Obstacles.	
18.	Acknowledge Crew Reports.		Report firing Status.		Report Loading Status.		Report Driving Status.	_
			——————————————————————————————————————					2

LOADER ENGAGEMENT DRILL PROCEDURES GUIDE

	TANK_COMMANDER		GUNNER	LOADER		DRIVER	=
1.	Acquire/Identify Target.		Search For Targets. *Acquire/identify Target. *Report Target.	Search For Targets. *Acquire/Identify Target. *Report Target.		Search For Targets. *Acquire/Identify Target. *Report Target.	
2.	issue fire Command.		Continue Search For Targets In Main Threat Area.	Unlock M240 In Azimuth. Unlock M240 In Elevation. Place Safety In F.	000	Listen For Driving Command.	
3.	*Direct Driver Toward Target.		Detect/Recognize Target.	Detect/Recognize Target.		Follow Driving Command. Detect/Recognize Target.	
4.	Listen For "IDENTIFIED."		Listen For "IDENTIFIED."	Announce "IDENTIFIED."		*Steer Toward Target,	
5.	Command "FIRE."	0	Listen For "FIRE."	Listen For "FIRE." Lay On Center Of Target Area.	0	Maintain Steady Speed/	-
				Track Target.		Direction. Alert Crew Of Obstacles.	
6.	Listen For "ON THE WAY."		Listen For "ON THE WAY."	Announce "ON THE WAY."	0	Monitor Commands.	
7.	Observe Tracer Impact.		*Observe Tracer Impact.	Fire 25-30 Round Burst In Z Pa	ittern.	*Observe Tracer Impact,	
8.	*Announce Sensing.		*Round Sense.	*Announce Sensing.		*Round Sense.	-
			Listen For TC Command.	Listen For TC Command.		Listen For Driving Command.	
9.	*Issue Subsequent Fire Command:		Respond To TC Command:	Respond To TC Command:		Respond To TC Command:	
	. Fire Adjust, Then Repeat Steps 7-9.		 Assist With Deflection Corrections. Then Steps 7-9. 	. Apply TC Corrections, Then Repeat Steps 7-9.		. Repeat Steps 7-9.	
	. Let Loader Adjust Fire, Then Repeat Steps 7-9.		*. Assist With Deflection Corrections, Then Steps 7-9.	. Adjust Fire. Them Repeat Steps 7-9.		. Repeat Steps 7-9,	
	. Command "CEASE FIRE," Then Steps 11-12.		. Do Steps 10-12.	. Do Steps 10-12.		. Do Steps 10-12.	
10.	Command "CEASE FIRE."		Continue To Scan.	Place M240 Safety In S.	0	Continue To Drive Tactically.	
				Lock M240 in Elevation.			
				Lock M240 In Azimuth,			
11.	*Issue Driving Communic.		Listen For Driver Alerts.	Reload/Recharge M240.		Follow Driving Command.	
				Remove Spent Casings.		Adjust Speed/Direction.	
				Resume Target Search,		Alert Crew Of Obstacles.	
12.	Acknowledge Crew Reports.		Report Firing Status,	Report Loading Status.		Report Driving Status.	

HIGH PERFORMANCE AIRCRAFT ENGAGEMENT DRILL

	TANK COMMANDER		GUNNER		LOADER		DRIVER
1.	Acquire/Identify Target.		Maintain Fire Control Systems. Monitor Commands.		Search For Targets. *Acquire/Identify Target. *Report Target.		Monitor Engine RPMs. Monitor Displays. Monitor Commands.
2.	Issue Fire Command.	0	Monitor Fire Commend.	0	Unlock M240 In Azimuth, Unlock M240 In Elevation, Place Safety In F.	000	Listen For Driving Command.
3,	*Direct Driver To Covered Posit	ion.			Detect/Recognize Target.		Follow Driving Command.
4.	Listen For "IDENTIFIED."		Listen For "IDENTIFIED."		Announce "IDENTIFIED."		Monitor Commends,
5.	Command "FIRE CALIBER FIFTY."	0	Listen For "FIRE."	 -	Listen For "FIRE."		Monitor Engine RPM.
6.	Insure MANUAL/POMER Lever Is in POMER.		Listen For "ON THE WAY."		Announce "ON THE MAY."		Monitor Displays.
7.	Place Cal. 50 Safety In FIRE.				Lay M240 On Target.	0	
8.	Lay Cal. 50 On Target.	0			Track Target.	0	
9.	Track Target.				*Wait Until Target Is Within Effective Range.		
10.	Fire Continuous Burst.				Fire Continuous Burst.		
11.	Sense Tracer Impact.		Listen Fo: "LOADER COMPLETE."		Sense Tracer Impact.		Listen For "LOADER COMPLETE."
12.	Adjust Fire.		Listen For "TC COMPLETE."		Adjust Fire.		Listen For "TC COMPLETE."
13,	Announce "TC COMPLETE."				Announce "LOADER COMPLETE."		
14.	Place Cal. 50 Safety In SAFE.		Listen For Fire Command.		Place M240 Safety In S.		Listen For Driving Command.
15.	Reload/Recharge Cal. 50.				Reload/Recharge M240.		
16.	Remove Spent Casings,				Remove Spent Casings.		
17.	Resume Target Search.				Resume Target Search.		

Table A-1

CREW DRILL TARGET SERVICING REQUIREMENTS FOR MI ABRAMS TANK CREWS

1. Single - Main Gan		- Control			N 4.5.	5	_				_
٠.	MATCH NAV	COVER	MATCH	WITH MASK	¥	Ξ.	STEE STAN	LASER ILEAD MIGHT	MISCE COMPUTER	TURRE	# 383 383
Sactionary vs. stationary get - Pre-iston	J	1		<u> </u>	AX.	X	4 - 22.	1000	1000	-	
2. Strette - Parin Sun Stationary vs. Moving GPS - Presisson											
3. Wittplace Sun Gar Suit every vs. Worning GRU, on, sea									-		
4. Statitumens - Main Gun/, 50 Call Statio entry 4s. Mov/Stationery 50 - Frice Ton/Suppressive											
Surgre - San San Mount - Landery Survivers on a										-	
6 Single - Main Gan Barina Iv. Moring GPs - ri - Scall											
7. Maintale - san Gan Maintale - tantonery Galanda - tantonery									-	 	
E. Sinyle - Mn. Sun Moving V., Moriny GPS - Battlesign							12.223				
4. Sigle on A Mechinegun Musmore vi Cationery SE observes ve											
19. single - Matchinegun Boving v. Lationary Suppressive							11111				
1) Simultaneus - Loader M2601.90 Cal Stationics - C. Moring Suppressiv											

FT'S EACH CREW DRILL, RECORD THE DATE ON WHICH TRAINING BEGAN AND EMDED. ALSO, I'VE CREW DRILL WAS CHECKED OUT OR CERTIFIED BY THE PLATOON LEADER/SERGEANT.

Table A-2
M1 EQUIPMENT CONDITIONS BY CREW STATION

					CR	EW	DRI	LLS			
TC STATION	1	2	3	4	5	6	7	8	9	10	11
Vehicle Master Power Light is Lit Turret Power in ON Cmdr's Knee Guard in Firing Position Manual/Power Lever in POWER Cal .50 in SAFE	X X X	X X X	X X X	X X X X	X X X	X X X	X X X	X X X	X X	X X	x x x
GUNNER'S STATION	1	2	3	4	5	6	7	8	9	10	11
Laser in ARM LAST RTN Fire Control Mode in NORMAL Ammunition Select in SABOT Gun Select in TRIGGER SAFE Gps Day Ballistic Door is Opened Gps Magnification in 3X Chest Rest in Firing Position Laser in SAFE Coax Safety in S Coax is Loaded/Charged Automatic Lead Cancelled	x x x x x x x	X X X X X X	X X X X X X	x x x x x x x	X X X X X X	X X X X X X	X X X X X X	X X X X X X X	X X X X X X	X X X X X X	x x x x x x x
LOADER'S STATION	1	2	3	4	5	6	7	8	9	10	11
Turret Lock in UNLOCKED Gun Turret Drive in POWERED Ejection Guard Forward Safe Light Lit Breech Locked Opened Breech Locked Closed M240 Locked in Azimuth and Elevation M240 Safety in S M240 is Loaded/Charged	X X X X	X X X X	X X X X	X X X X	X X X X	X X X X	X X X X	X X X X	x x x x	X X X X X X	x x x x x x
DRIVER'S STATION	1	2	3	4	5	6	7	8	9	10	11
Vehicle Master Power in ON Tactical Idle in ON Engine Operating at 1250-1350 rpm Parking Service Brake Light is Lit Transmission in N	X X X X	X X X X	X X X X	X X X X	x	x	X	X	x	X	X
Tactical Idle in OFF Transmission in D Tank Moving at 10-20 MPH					X X X	X X X	X X X	X X X	X X X	X X X	X X X

APPENDIX B. CREW DRILLS FOR M60A3 TANK GUNNERY

Tank Gunnery Crew Drills Training

INTRODUCTION: The key to successful team performance is practice. Consider the top teams in professional sports. They are continuously practicing the basic plays that make them a winner. When they practice, their workouts are taken seriously and they dedicate themselves to improving both individually and as a team. They are willing to pay the price. They accept the hard work and the time it takes to get it right. When game time comes around they are ready. They are confident that they can perform their individual assignments and have acquired the team skills and timing necessary for them to win.

Crew Drills are a set of standardized procedures that a tank crew must perform to be successful on or off the battlefield. In tank gunnery, these crew drills represent the most basic of all possible target engagements. The outcome of these engagements will depend almost entirely on which tank crew can put steel on target the fastest and with the least amount of gunnery error. To be this good demands crew drill practice, and the tank crew that dedicates itself to doing whatever it takes to acquire the individual and team gunnery skills will win.

CHARACTERISTICS: There are 11 crew drills considered fundamental to M60A3 tank gunnery. Each crew drill has a procedures guide which identifies the performance steps all crewmembers must make during each phase of an engagement. It also identifies the more critical gunnery steps that can be observed to check-out individual crewmember performance. These tank gunnery crew drills are designed specifically for open hatch operations during daylight and without the use of live ammunition. More realistic battlefield conditions that can be exercised when dry-firing each crew drill are outlined in Table B-1. Specific equipment conditions that must be established prior to crew drills training are presented in Table B-2.

RESPONSIBILITIES: You, the tank commander, are the primary trainer for crew drills. It is your responsibility to provide each crewmember with the training required to successfully perform each of the engagements. Every opportunity, scheduled and unscheduled, must be seized to train your crew. Platoon leaders/sergeants should be looked to for training assistance. However, it is your tank crew and how well they perform in combat will depend entirely on how well you prepared them during training.

TRAINING APPROACH: To accomplish crew drill training, the following approach is recommended:

- 1. Introduce the Crew Drill. State the task to be trained and the performance standards specified in FM 17-12-3. Point out the importance of conducting the crew drill, why it is being trained using dry-fire methods, and how it relates to gunnery performance expected on the battlefield.
- 2. <u>Demonstrate</u>. Talk each crewmember through the tank gunnery procedure using the procedures guide. Show them where their individual performances contribute collectively to the success or failure of the gunnery engagement. Using the asterisked (*) items, show them how a performance step might be included during an engagement.
- 3. <u>Get Set-up</u>. Instruct your crew to enter the tank. When ready, conduct a prepare-to-fire check. Next, select the battlefield condition to be trained (Table B-1), and set-up the equipment (Table B-2). For the purpose of dry-fire training, tell the loader to leave the breech open for loading a "second" round, and to assume a battlesight condition. Tell the gunner to simulate the actual firing of a live main gum round and to announce a round sensing.
- 4. Practice. Issue an appropriate fire command to begin the engagement. Proceed gradually, reviewing each crewmember's individual task performance. When an error is noted that can be easily fixed, provide immediate hands-on instruction. Otherwise, notify him of the deficiency and arrange for remedial training. If more timing and coordination is required between two crewmembers, arrange the time to let them practice. Repeat the engagement as often as necessary to meet the crew drill standards.
- 5. Train For Combat. Increase the difficulty of the task by practicing it under the remaining battlefield conditions identified in Table B-1. Close the hatches, put on protective masks, use manual controls, simulate a threeman crew, and practice what is required when there are weapon system failures.
- 6. Get Certified. Once your tank crew has mastered a given crew drill across all battlefield conditions, contact your platoon leader or sergeant and ask him to certify your tank's readiness. Have him review your performance and record your progress on Table B-1.

#1. STATIONARY TANK/STATIONARY TARGET ENGAGEMENT DRILL PROCEDURES GUIDE

	TANK COMMANDER		GUNNER		LOADER		DRIVER	
١.	Acquire/identify Target.		Maintain Fire Control System, Monitor Commands.		Search For Targets. *Acquire/Identify Target. *Report Target.		Maintain Engine RPMs. Monitor Gages. Monitor Commends.	
2.	Issue Fire Command: . GUNNER, SABOT (HEAT), TANK."	Ο.	einsure Turret Power is ON. Insure Announced Ammo is Indexed. Place MAIN GUM Switch In ON.	0	Orop Down Into Turret. *Close/Lock Hatch.		Listen For Driving Com	mand.
3.	Lay Gun For Direction.		Look Through Telescope.		Insure Turret Is Unlocked/Clear.		•Release Brakes.	
4.	Command "ORIVER MOVE OUT, GUNNER TAKE OVER."		Squeeze Palm Switches.		*Place Turret BLOWER In ON.		Shift To L.	
э.	Release Palm Switch On TC Override.		Issue Driving Command.		Insure Path Of Recoil Is Clear,		Orive Tank Formerd.	
6.	Listen for "DRIVER STOP."		Insure Gun Is Clear Of Terrain, Announce "ORIVER STOP,"		Place SAFETY In FIRE.		Listen For Driving Com Stop Tank,	Bend.
7.	Listen for "UP."		Look Through TTS, "Adjust Thermal Channel Range Focus. Detect/Recognize Target.		Announce "UP,"		Mold Brakes Depressed. Shift To R. Maintain Engine RPM.	00
٥.	Listen For "IDENTIFIED."		Announce "IDENTIFIED."		Listen For "IDENTIFIED."		Remove Hands From T-Bar	r.
٠.	*Close/Lock Hatch.		"Select NAR Field Of View. Lay Slightly Below Center Of Mass.	00	Identify Announced Round.		Heintein Engine RPM.	
10.	Verify Range Data And GO Light.		Announce "LASING." Press Lase/Lead Button. Listen For "RELASE" or "FIRE."		Unlock Round From Rack, Remove Round,		Monitor Commands.	
н.	*Command "RELASE, AIM (Higher)(Lower)		*Release/Squeeze Palm Switches.		"Listen For "RELASE."		Monitor Gages.	
١	*Press BATL RNG And RESET Buttons.		*Adjust Aim And Repeat Step 10.	0				
١3.	Command "FIRE."		Lay On Center Of Visible Mass.		Listen for "FIRE."			
14.	Listen For "ON THE WAY!"		Announce "ON THE WAY."		Listen For "ON THE WAY."			
ı,	Attempt To Sense.		Squeeze Firing Trigger(s).		Brace for Recoil.		Brace For Recoil.	
16.	*Announce Sensing/Observation:		Relay On Target Aiming Point. Announce Sensing/Observation. Listen For TC Command.	00	Insure SAFETY In SAFE. Load Round. Listen for TC Command.	0	Listen For Driving Com	Mane.
17.	*Issue Subsequent Fire Command:		*Respond To TC Command:		*Respond To TC Command:		*Respond To TC Command:	
	. Command "REENGAGE," Then Steps 18-26.		. Do Steps 18-26.		. Oo Steps 18-26.		. Do Steps 18-26.	
	. Command "CEASE FIRE," Then Steps 27-30.		. Do Steps 27-30.		. Do Steps 27-30.		. Do Steps 28-30.	

10.	Acknowledge Crew Reports.	_	Report Firing Status.		Report Loading Status.		Report Driving Status.
29.	"Repeat Steps 1-17.		"Repeat Steps 1-17.		*Repeat Steps 1-17,		*Repeat Steps 1-17.
	"DRIVER BACK UP STOP." "DRIVER BACK UP STOP. TURN RIGHT (LEFT), MOVE TO ALTERNATE POSITION	_	Look Through Unity Window. Listen For Oriver Alerts. Brace For Stopping.		.*Place Turret BLOWER In OFF. Listen For Driver Alerts. Brace For Stopping*Resume Target Search.		Follow Driving Command: . Adjust Speed/Direction, . Alert Crew Of Obstacles, . Stop Tank,
27 , 28	Press BATL RNG And RESET Buttons. Issue Driving Commend:		*Place MAIN GUN Switch In OFF, Update Fire Control System. Monitor Driving Commands:	0	Reload/Restow Round, Check Replenisher Tape. Monitor Driving Commands:	0 0 0	Prepare To Back Up.
Jo.	Repeat Steps 16-17.		Repeat Steps 16-17,		Repeat Steps 16-17.		Repeat Steps 16-17,
25.	Attempt To Sense.		Squeeze Firing Trigger(s). "Continue To Track.	0	Brace For Recoil.		Brace For Recoil.
	Listen For "ON THE WAY."	_	Announce "ON THE WAY."		"Listen For "FIRE." Listen For "ON THE WAY."		Maintain Engine RPM.
	"Press BATL RNG And RESET Buttons. Command "FIRE."		*Adjust Aim And Repeat Step 20. Lay On Center Of Visible Mass.		Alicana Can MEIRE N		
21.	*Command "RELASE, AIH (Higher)(Lower)		*Release/Squeeze Palm Switches.		"Listen for "RELASE."		
20.	Yerify Range Data And GO Light.		Announce "LASING." Press Lase/Lead Button. Listen for "RELASE" and "FIRE."	0 0	Identify Announced Round. Unlock Round From Rack. Remove Round.	0	Monitor Gages.
19,	Listen For "UP."		*Listen For "UP."		Announce "UP."		
18.	Press BATL RMG And RESET Buttons.		Lay Slightly Below Center Of Mass.		Insure Path Of Recoil Is Clear, *Place SAFETY In FIRE,		Monitor Commands.

#2. STATIONARY TANK/MOVING TARGET ENGAGEMENT DRILL PROCEDURES GUIDE

	TANK COMMANDER	_	GUNNER		LOADER		DRIYER	
١,	Acquire/Identify Target.		Maintain Fire Control System. Monitor Commands.	0	Search for Targets. *Acquire/Identify Target. *Report Target.		Maintain Engine RPM. Monitor Gages. Monitor Commands.	
2.	Issue Fire Command:		*Insure Turret Power Is ON.	_	Drop Down Into Turret.		Listen For Oriving Com	mand.
	. "GUMNER, SABOT (HEAT), MOVING TANK."		Insure Announced Ammo Is Indexed. Place MAIN GUN Switch In ON.		*Close/Lock Hatch.			
3.	Lay Gun For Direction.		Look Through Telescope.		Insure Turret Is Unlocked/Clear.		*Release Brakes.	
4.	Command "ORIVER HOVE OUT, GUNNER TAKE OVER."		Squeeze Palm Switches.		*Place Turret BLOWER In ON.		Shift To L.	
à.	Release Palm Switch On TC Override.		Issue Driving Command.		Insure Path Of Recoil Is Clear.		Orive Tank Forward.	
ó.	Listen for "DRIVER STOP."		Insure Gun Is Clear Of Terrain. Announce "ORIVER STOP."		Place SAFETY In FIRE.		Listen For Driving Com Stop Tank.	mend.
1.	Listen Far "UP."		Look Through TTS. *Adjust Thermal Channel Range Focus. Detect/Recognize Target.		Announce "UP."		Hold Brakes Depressed. Shift To R. Maintain Engine RPM.	
đ.	Listen for "IDENTIFIED."		Announce "IDENTIFIED."		Listen for "IDENTIFIED."		Remove Hands From T-8a	r.
) ,	*Close/Lock Hatch.	0	*Select MAR Field Of View. Lay Slightly Below Center Of Mass. Track Target.	0 0 0	Identify Announced Round.		Maintain Engine RPM.	
10.	verify Range Oata And GO Light.		Announce "LASING." Press Lase/Lead Button. Listen For "RELASE" or "FIRE."		Unlock Round From Rack, Remove Round.	۵	Monitor Commands.	
11,	*Command "RELASE, AIM (Higher)(Lower)		*Release/Squeeze Palm Switches.		"Listen for "RELASE."			
2.	*Press BATL RNG And RESET Buttons.		*Adjust Aim And Repeat Step 10.					
3.	Commend "FIRE.		Lay On Center Of Visible Mess.		Listen For "FIRE."		Monitor Gages.	
14.	Listen For "ON THE WAY,"		Announce "ON THE WAY."		Listen For "ON THE WAY,"			
١\$.	Attempt To Sense.		Squeeze Firing Trigger(s). Continue To Track.	0 0	Brace For Recoil,		Brace For Recoil.	
Ġ.	*Announce Sensing/Observation:		Relay On Target Aiming Point, Announce Sensing/Observation. Listen For TC Command,	00	Insure SAFETY In SAFE. Load Round. Listen For TC Command.	۵	Listen For Oriving Comm	mend.
1.	*Issue Subsequent Fire Command:		*Respond To TC Commend:		*Respond to TC Command:		*Respond To TC Command:	
	. Command "REENGAGE," Then Steps 18-26.		. Do Steps 18-26.		. Do Steps 18-26.		. Do Steps 18-26.	
	, Command "CEASE FIRE," Then Steps 27-30.		. 0o Steps 27-10.		. Oo Steps 27-30.		. Do Steps 27.30.	

	(Cont)				
ä.	Press BATE RNG And RESET Buttons.	Lay Slightly Below Center Of Mass.	Insure Path Of Recoil Is Clear,	_	Monitor Commands.
		*Track Terget.	Place SAFETY in FIRE.		
19.	Listen for "UP."	*Listen For "UP."	Announce "UP."		
20.	Verify Range Data And GO Light.	Announce "LASING."	Identify Announced Round.		Monitor Gages.
		Press Lase/Lead Button.	Unlock Round From Rack.		
		Listen For "RELASE" and "FIRE."	Remove Round.		
21.	"Command "RELASE, AIM (Higher)(Lower)	"Release/Squeeze Palm Switches.	*Listen For *RELASE.*		
22.	*Press BATL RNG And RESET Buttons.	*Adjust Aim And Repeat Step 20.			
23.	Command "FIRE."	Lay On Center Of Visible Mass.	*Listen For "FIRE."		
24.	Listen For "ON THE WAY."	Announce "ON THE WAY."	Listen for "ON THE WAY."		Maintain Engine RPM.
2 5 .	Attempt To Sense.	Squeeze firing Trigger(s).	Brace for Recoil.		Brace For Recoil.
		*Continue To Track.			
٥.	Repeat Steps 16-17.	Repeat Steps 16-17.	 Repeat Steps 16-17.		Repeat Steps 16-17.
27.	Press BATL RNG And RESET	*Place MAIN GUN Switch In OFF,	Reload/Restow Round.		Prepare To Back Up.
	Buttons,	Update Fire Control System.	Check Replenisher Tape.		
28.	Essue Oriving Commands:	Monitor Oriving Commands:	Monitor Driving Commands:		Follow Oriving Commands:
	. "DRIVER BACK UP STOP."	, Look Through Unity Window,	.*Place Turret SLOWER In OFF.		. Adjust Speed/Direction.
	. "DRIVER BACK UP STOP. TURN RIGHT (LEFT). MOVE TO	. Listen For Driver Alerts.	. Listem For Driver Alerts.		. Alert Crew Of Obstacles.
	ALTERNATE POSITION	. Brace For Stopping.	. Brace for Stopping. . "Resume Target Search.		. Stop Tank.
29.	*Repeat Steps 1-17.	 *Repeat Steps 1-17,	 *Repeat Steps 1-17.		*Repeat Steps 1-17.
10.	Acknowledge Crew Reports,	 Report Firing Status.	 Report Loading Status.		Report Driving Status.

#3. STATIONARY TANK/MOVING TARGET TELESCOPE ENGAGEMENT DRILL PROCEDURES GUIDE

	TANK COMMANDER		GUNNER		LOADER		DRIVER	
1.	Acquire/[Jentify Target,		Maintain Fire Control System, Monitor Commands.		Search For Targets. *Acquire/Identify Target. *Report Target.		Maintain Engine RPM. Monitor Gages. Monitor Commands.	
2.	Issue Fire Command. "GUTHER, SABOT (HEAT), MOVING TANK."		*Insure Turret Power Is ON. Place MAIN GUN Switch In ON.	_	Orop Down Into Turret. *Close/Lock Hatch.		Listen For Driving Com	mend.
3.	usy Sun For Direction.		Look Through Telescope. Insure Announced Reticle Is In Telesco	D	Insure Turret Is Unlocked/Clear.		«Release Brakes.	
4.	Command 'ORIVER MOVE OUT, GUNVER TAKE OVER,'		Squeeze Palm Switches,		*Place Turret BLOWER in ON.		Shift To L.	
á.	Release Palm Switch On TC Override.		Issue Driving Command.		Insure Path Of Recoil Is Clear.		Drive Tank Forward.	
٥.	Cisten For "ORIVER STOP."		Insure Gun Is Clear Of Terrain. Announce "ORIVER STOP."		Place SAFETY In FIRE.		Listen For Driving Comm Stop Tank.	mend.
	Listen For "UP."		Detect/Recognize Target.		Announce "UP."		Hold Brakes Depressed. Shift To R.	
	Listen for "IDENTIFIED."		Announce "IDENTIFIED."		Listen for "IDENTIFIED."		Remove Hands From T-Bar	٠.
7.	Estimate/Announce Range.		Track Target. Identify Announced Rangeline.		Identify Announced Round. Unlock Round From Rack.		Maintain Engine RPM.	
10.	*Cluse/Lock Hatch.		Lay Announced Rangeline On Center Of Visible Mass. Apply Standard Lead. Listen For "FIRE."	00	Remove Round,		Monitor Gages.	
и.	Communia "FIRE."		Make Final Precise Lay,		Listen For "FIRE."		Monitor Commands.	
12.	Listen Far "ON THE WAY,"		Announce "ON THE WAY."		Listen For "ON THE WAY."			
13.	Attempt To Sense.		Squeeze Firing Trigger(s). Continue To Track.		Brace For Recoil.		Brace For Recoil.	
14,	*Announce Sensing/Observation.		Relay On Target Aiming Point. Announce Sensing/Observation. Listen For TC Command.	00	Insure SAFETY In SAFE. Load Round. Listen for TC Command.	_	Listen For Driving Comm	Mend.
15.	"Issue Subsequent Fire Command: Fire Adjust, Then Steps 16-19. Let unner Adjust Fire, Then Steps 16-19. Lockmand "CEASE FIRE," Then Steps 22-24.		*Respond To TC Command: . Apply Corrections, Then Steps 16-19 Fire Adjust, Then Steps 16-19 Do Steps 20-24.	0	*Respond To TC Command: . Do Steps 16-19 Do Steps 16-19 Do Steps 20-24.		**Respond To TC Command: . Do Steps 16-19 Do Steps 16-19 Do Steps 22-24.	
٠٠.	Eisten Für "UP."		Listen For "UP." *Track Target. Hake Final Precise Lav		Insure Path Of Recoil is Clear. Place SAFETY in FIRE. Announce "UP"		Monitor Gages.	

(come)						
Listen for "ON THE WAY."		Announce "ON THE WAY."		Identify Announced Round. Unlock Round From Rack. Remove Round. Listen For "ON THE MAY."	0	Maintain Engine RPM,
Attempt To Sense.		Squeeze Firing Trigger(s). *Continue To Track.	00	Brace for Recoil.		Brace for Recoil,
Repeat Steps 14-15.	_	Repeat Steps 14-15.		Repeat Steps 14-15,		Repeat Steps 14-15.
		*Place MAIN GUN Switch In OFF.		Reload/Restow Round.		Prepare To Back Up.
		Update Fire Control System.		Check Replemisher Tape.		
SSUE Driving Commands: "DRIVER BACK UPSTOP." "DRIVER BACK UPSTOP. IURN RIGHT (LEFT). MOVE TO ALTERNATE POSITION JRIVER STOP."		Monitor Driving Commands: Look Through Unity Window. Listen For Driver Alerts. Brace For Stopping.		Monitor Driving Commands: .*Place Turret BLOWER In OFF Listen for Driver Alerts Brace For Stopping.		Follow Oriving Commands: Adjust Speed/Direction. Alert Crew Of Obstacles. Stop Tank.
*Hepeat Steps 1-15.		*Repeat Steps 1-15.		*Repeat Steps 1-15.		*Repeat Steps 1-15.
Acknowledge Crew Reports.		Report Firing Status.		Report Loading Status.		Report Oriving Status.
	Attempt To Sense. Repeat Steps 14-15. Sue Oriving Commands: "DRIVER BACK UP STOP." "DRIVER BACK UP STOP. IUDR RIGHT (LEFT). MOVE TO ALTERNATE POSITION JRIVER STOP." "Meyeat Steps 1-15.	Attempt To Sense. Repeat Steps 14-15. Lissue Oriving Commands: "ORIVER MACK UP STOP." "DRIVER MACK UP STOP. IURN RIGHT (LEFT). MOVE TO ALLERMATE POSITION JRIVER STOP." "Meyeat Steps 1-15.	Announce "ON THE WAY." Announce "ON THE WAY." Announce "ON THE WAY." Squeeze Firing Trigger(s). "Continue To Track. Repeat Steps 14-15. Repeat Steps 14-15. "Place MAIN GUN Switch in OFF. Update Fire Control System. Update Fire Control System. Source Oriving Commands: DRIVER WACK UP STOP. TURN RIGHT (LEFT). MOVE TO ALIZEMATE POSITION JRIVER STOP." "Repeat Steps 1-15. "Repeat Steps 1-15.	Attempt To Sense. Squeeze Firing Trigger(s). "Continue To Track. Repeat Steps 14-15. Repeat Steps 14-15. Place MAIN GUN Switch in OFF. Update Fire Control System. Update Fire Control System. Saue Oriving Commands: "ORIVER BACK UP STOP." LOOK Through Unity Window. Listen For Driver Alerts. JRIVER STOP." SPlace For Stopping. "Repeat Steps 1-15. "Repeat Steps 1-15.	Announce "ON THE WAY." Announce "ON THE WAY." Identify Announced Round. Unlock Round From Rack. Remove Round. Listen For "ON THE WAY." Attempt To Sense. Squeeze Firing Trigger(s). "Continue To Track. "Continue To Track. Repeat Steps 14-15. Repeat Steps 14-15. Repeat Steps 14-15. Repeat Steps 14-15. "Place MAIN GUN Switch in OFF. Update Fire Control System. Check Replenisher Tape. Losue Oriving Commands: "DRIVER BACK UP STOP." Look Through Unity Window. "Place Turret BLOWER In OFF. Listen For Driver Alerts. Listen For Driver Alerts. Brace For Stopping. "Newest Steps 1-15. "Repeat Steps 1-15. "Repeat Steps 1-15. "Repeat Steps 1-15. "Repeat Steps 1-15.	Announce "ON THE WAY." Announce "ON THE WAY." Announce "ON THE WAY." Announce "ON THE WAY." Attempt To Sense. Squeeze Firing Trigger(s). *Continue To Track. Repeat Steps 14-15. Repeat Steps 14-15. Repeat Steps 14-15. Repeat Steps 14-15. Place MAIN GUN Switch in OFF. Update Fire Control System. Check Replenisher Tape. Update Fire Control System. Nonitor Driving Commands: DRIVER MACK UP STOP. LOOK Through Unity Window. Place Turret BLOKER In OFF. Listen For Driver Alerts. Listen For Driver Alerts. Brace For Stopping. *Neweat Steps 1-15. *Repeat Steps 1-15.

#4. STATIONARY TANK/SIMULTANEOUS TARGET ENGAGEMENT DRILL PROCEDURES GUIDE

	TANK COMMANDER		GUNNER	==	LUADER	=	DRIVER	=
۱,	Acquire/Identify Target,	ō	Maintain Fire Control System. Monitor Commands.		Search For Targets. *Acquire/Identify Target. *Report Target.		Maintain Engine RPM. Monitor Gages. Monitor Commands.	_
2.	Issue Fire Command:	ā	*Insure Turret Power Is ON.		Drop Down Into Turret.		Listen For Driving Com	mend.
	. "GUNNER, SABOT (HEAT), MOVING TANK."		Insure Announced Ammo Is Indexed. Place MAIN GUN Switch In ON.		*Close/Lock Match.			
J.	Lay Gun For Direction.	0	Look Through Telescope.		Insure Turret Is Unlocked/Clear,		*Release Brakes.	
4.	Command "DRIVER MOVE OUT, GUMMER TAKE OVER."		Squeeze Palm Switches.		*Place Turret SLOWER in ON.		Shift To L.	
5.	Release Palm Switch ON TC Override.		Issue Driving Command.		Insure Path Of Recoil Is Clear.		Drive Tank Forward.	
٠.	Listen For "ORIVER STOP."		Insure Gun Is Clear Of Terrain.		Place SAFETY in FIRE.		Listen For Driving Com	mend.
			Announce "DRIVER STOP,"				Stop Tank,	
7.	Liscen For "UP."		Look Through TTS.		Announce "UP."		Hold Brakes Depressed.	_
			*Adjust Thermal Channel Range Focus.				Shift To R, Maintain Engine RPM.	
			Detect/Recognize Target.	_			Maintain Engine Krm.	_
8.	Listen for "IDENTIFIED."		Announce "IDENTIFIED."		Listen For "IDENTIFIED."		Remove Hands From T-8a	r.
ø.	Place CUPOLA POMER Switch In ON.		"Select NAR Field Of View.		Edentify Announced Round.		Maintain Engine RPM.	
			Lay Slightly Below Center Of Mass.		Unlock Round From Rack,			
0.	Place GUN SAFETY Switch In ON.		Track Target.		Remove Round.		Monitor Commends.	
Π.	Place LAST ROUND OVERRIDE Switch In OFF.	"	Announce "LASING."					
	th orr.	_	Press Lase/Lead Button.					
12.	Verify Range Data And GO Light.		Listen for "RELASE" or "FIRE."				Monitor Gages.	
13.	"Command "RELASE, AIM (Higher)(Lower)		*Melease/Squeeze Palm Switches.		*Listen for "RELASE."			
14,	"Press BATL RIG And RESET Buttons.		*Adjust Aim And Repeat Steps 10-12.					
15.	Command "FIRE AND ADJUST, CAL .	‰.·	Lay On Center Of Visible Mass.		Listen For "FIRE,"			
16.	Estimate Range And Lay On Cente Of Visible Mass.	'n	Announce "ON THE HAY,"		Listen For "ON THE WAY."			
17.	Fire 10-15 Round Burst And Sense Tracer Impact.		Squeeze Firing Trigger.		Brace For Recoll.		Brace For Recoll.	
			Continue To Track.					
ij.	*Announce Sensing/Observation.		Relay On Target Aiming Point.		Insure SAFETY In SAFE.		Listen For Driving Com	ne nd .
			Announce Sensing/Observation,		Load Round.			
			Listen for TC Command.		Listen for TC/Gunner Commends.			

	(Cont)					
19.	Take Command Actions:		Take Command Actions:	Respond To Gunner Commands:		Respond To Gummer Commands:
	. Adjust Fire, Them Steps 18 and 19.		. Da Steps 21-30.	. Do Steps 21-30,		. Do Steps 21-30.
	. Announce "TC COMPLETE," Then Steps 21-30.		. Announce "CEASE FIRE," Then Steps 31-34.	, Do Steps 31-34,		. Do Steps 31-34,
٥٠.	*Issue Subsequent Fire Command:		Respond To TC Command:	Respond To TC Commands:		Respond To TC Commands:
	. Command "REENGAGE," Then Steps 21-30.		. Do Steps 21-30.	. Do Steps 21-30,		. Do Steps 21-30.
	. Command "CEASE FIRE," Then Steps 31-34.		. Oo Steps 31-34.	. Do Steps 31-34.		. Do Steps 31-34.
21.	Press BATL RNG Ang RESET Buttons.		Lay Slightly Below Center Of Mass.	Insure Path Of Recoil Is Clear.		Monitor Commands.
	ouccons.		*Track Target.	Place SAFETY In FIRE.		
22.	Place CUPOLA POWER Switch In OF	f. 	Listen For "UP."	Announce "UP."		Monitor Gages.
23.	Place GUN SAFETY Switch In OFF.		Announce "LASING."	Identify Announced Round.		
			Press Lase/Lead Button.			
24.	Verify Range Data And GO Light.		Listen For "RELASE" or "FIRE."	Unlock Round.		Monitor Engine RPM.
				Remove Round.		
25.	"Cumand "RELASE, AIM (Higher)(Lower)		*Release/Squeeze Palm Switches.	*Listen for "RELASE."		
26.	*Press BATL RNG And RESET Buttons.		"Adjust Aim And Repeat Steps 23-24.			
27.	Command "FIRE."		Lay On Center Of Visible Mass.	*Listen For "FIRE."		
29.	Listen For "ON THE WAY."		Announce "ON THE WAY."	Listen For "ON THE WAY."		
Z¥.	Attempt To Sense.		Squeeze Firing Trigger(s).	Brace For Recoil.		Brace For Recoil.
			*Continue To Track.			
10.	Repeat Steps 18 and 20.	_	Repeat Steps 18 and 20.	 Repeat Steps 18 and 20.		Repeat Steps 18 and 20.
31.			*Place MAIN GUN Switch In OFF.	Reload/Restow Round.		Prepare To Back Up.
	Buttons.		Update Fire Control System.	Check Replenisher Tape.		
32.	Issue Oriving Commands:		Monitor Driving Command:	Monitor Driving Command:		Follow Driving Command:
	. "DRIVER BACK UP STOP."		. View Through Unity Window.	.*Place Turret BLOMER In OFF.		. Adjust Speed/Direction.
	. "DRIVER BACK UP STOP. TURN RIGHT (LEFT). MOVE TO		. Listen For Driver Alerts.	. Listen For Driving Alerts.		. Alert Crew Of Obstacles.
	ALTERNATE POSITION ORIVER STOP.		. Brace For Stopping.	. Brace for Stopping, .*Resume Target Search.		. Stop Tank.
33.	"Repeat Steps 1-20.		*Repeat Steps 1-20.	 *Repeat Steps 1-20.		*Repeat Steps 1-20.
34.	Acknowledge Crew Reports.	_	Report Firing Status.	 Report Loading Status.	_	Report Driving Status.

#5. STATIONARY TANK/MOVING MULTIPLE TARGET ENGAGEMENT DRILL PROCEDURES GUIDE

	TANK COMMANDER		GUNNER		LOADER		DRIVER	
1,	Acquire/Identify Target.	0	Maintain Fire Control System. Monitor Commands.		Search for Target. *Acquire/Identify Target. *Report Target.		Maintain Engine RPMs. Monitor Gages. Monitor Commands	
2.	issue Fire Command: . "GUNNER, SABOT (HEAT), THO (THREE) MOVING TANKS, RIGHT (LEFT, CENTER) TANK."	0	*Insure Turret Power Is ON. Insure Announced Ammo Is Indexed. Place MAIN GUN Switch In ON.		Orap Down Into Turret. *Close/Lock Hatch.		Listen For Driving Com	mend.
3.	Lay Gun For Direction.		Look Through Telescope.	_	Insure Turret is Unlocked/Clear,		*Release Brakes.	
4.	Command "ORIVER MOVE OUT, GURNER TAKE OVER."		Squeeze Palm Switches.		*Place Turret Blower In ON.		Shift To L.	
۶.	Release Palm Switch On TC Override.		issue Driving Commands.		Insure Path of Recoil Is Clear.		Drive Tank Forward.	
٥.	Listen For "DRIVER STOP."		Insure Gun Is Clear Of Terrain, Announce "DRIVER STOP."		Place SAFETY In FIRE.		Listen For Driving Comm	mand.
1.	Listen for "UP."		Look Through TTS. *Adjust Thermal Channel Range Focus. Detect/Recognize Target,	0	Announce "UP."		Hold Brakes Depressed. Shift To R. Maintain Engine RPM.	00
8.	Listen For "IDENTIFIED."		Announce "IDENTIFIED."		Listen For "IDENTIFIED."		Remove Hands From T-Bar	٠.
۹.	"Close/Lock Hatch.		*Select MAR Field Of View.		Identify Announced Round.		Maintain Engine RPM.	
			Lay Slightly Below Center of Hass.		Unlock Round From Rack.			
tu.	verify Range Data And GO Light.		Track Target. Announce "LASING." Press Lase/Lead Button. Listen For"RELASE" or "FIRE."	000	Remove Round.		Monitor Commands.	
11.	"Command "RELASE, AIM (Higher)(Lower)		*Release/Squeeze Palm Switches.		*Listen For "RELASE."			
12.	*Press dATL RNG And RESET Buttons.		*Adjust Aim And Repeat Step 10.					
13.	Command "FIRE."		Lay On Center Of Visible Mass.		Listen For "FIRE."		Monitor Gages.	
14.	Listen for "ON THE WAY."		Announce "ON THE WAY."		Listen for "ON THE WAY."			
15.	Attempt To Sense.		Squeeze Firing Trigger(s). Continue To Track.	0	Brace For Recoll.		Brace For Recoll.	
16.	*Announce Sensing/Observation:	_	Relay On Target Aiming Point. Announce Sensing/Observation. Listen For TC Command.	0	Insure SAFETY In SAFE. Load Round. Listen For TC Command.	_	Listen For Driving Comm	Mend.

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17.	*Tssue Subsequent Fire Command:	а	*Respond To TC Command:	*Respond To TC Command:		*Respond To TC Command:
	. Command "REENGAGE," Then Steps 1s-27.		. Do Steps 18-27.	. Do Steps 18-27.		. Do Steps 18-27.
	. Command "(NEXT TARGET)," Then Steps 18-27.		. Do Steps 18-27.	. Do Steps 18-27.		. Do Steps 18-27,
	Command "CEASE FIRE," Then Steps 28-31.		. Do Steps 28-31.	. Do Steps 28-31.		. Do Steps 28-31.
lø.	Press BATL RNG And RESET Buttons.		Release/Squeeze Palm Switches.	Insure Path of Recoil Is Clear.		Monitor Commands.
	outcoms.		Detect/Recognize Target.	Place SAFETY In FIRE.		
19.	"Listen For" IDENTIFIED."		Announce "IDENTIFIED"	"Listen For "IDENTIFIED."		
20.	Listen For "UP."		Lay Slightly Below Center Of Mass.	Announce "UP."		Monitor Gages.
			"Listen for "UP."	Identify Announced Round.		
21.	Verify Range Data and GO Light.	0	Track Target.	Unlock Round From Rack.		Maintain Engine RPM.
			Announce "LASING."	Remove Round.		
			Press Lase/Lead Button.			
			Listen For "RELASE" and "FIRE."			
22.	*Command *RELASE, AIM (Higher)(Lower)		*Release/Squeeze Palm Switches.	"Listen For "RELASE."		
23.	"Press BATL RMG And RESET Buttons.		"Adjust Aim And Repeat Step 21.			
24.	Command "FIRE."		Lay On Center Of Visible Mass.	"Listen for "FIRE."		
25.	Listen For "ON THE WAY."		Announce "ON THE WAY."			
20.	Attempt To Sense.		Squeeze Firing Trigger(s).	Brace For Recoil.		Brace for Recoil.
			Continue To Track,			
27.	Repeat Steps 16-17,		Repeat Steps 16-17,	Repeat Steps 16-17.		Repeat Steps 16-17.
23 .	Press BATL RMG And RESET Buttons.		*Place MAIN GUN Switch In OFF.	Reload/Restow Round.		Prepare To Back Up.
			Update Fire Control System.	Check Replenisher Tape.		
29.	Essue Driving Command:		Monitor Oriving Commands:	Monitor Driving Commands:		Follow Driving Command:
	. "DRIVER BACK UP STOP.		. Look Through Unity Window.	.*Place Turret BLOWER In OFF.		. Adjust Speed/Oirection.
	. TOREVER BACK UP STOP. TURN REGHT (LEFT), MOVE TO		. Listen For Oriver Alerts.	. Listen For Driver Alerts.		. Alert Crew Of Obstacles.
	ALTERNATE PÖSITIÓN DRIVER STOP."		. Brace For Stopping	. Brace for Stopping. .*Resume Target Search.		. Stop Tank.
30.	"Repeat Steps 1-17,	_	*Repeat Steps 1-17.	 *Repeat Steps 1-17,	_	*Repeat Steps 1-17,
J).	Acknowledge Crew Reports.		Report Firing Status.	 Report Loading Status.		Report Driving Status.
		==		 	==	

#6. MOVING TANK/STATIONARY TARGET ENGAGEMENT DRILL

2. 3. 4.	TANK COMMANDER		GUNNER		LOADER		DRIVER
3. 4.	Acquire/Identify Target.	<u></u>	Search For Targets. *Acquire/Identify Target. *Report Target,	0	Search For Targets. *Acquire/Identify Target. *Raport Target.		Search For Target. "Acquire/Identify Target. "Report Target.
۹.	Issue Fire Command: . "GUNNER, SABOT (HEAT), TANK"		Insure Announced Ammo is Indexed. Insure STAB Is ON.		Drop Down Into Turret. *Close/Lock Hatch.		Listen For Driving Command.
	*Direct Oriver Toward Target,		Place MAIN GUN Switch In ON,		Insure Turret Is Unlocked/Clear. *Place Turret BLOWER In ON.		Follow Driving Command. Detect/Recognize Target.
o.	Lay Jun for Olyection.		Look Through ITS. *Adjust Thermal Channel Range Focus.		Insure Path Of Recoil Is Clear. Place SAFETY In FIRE,	0	*Steer Toward Target.
٥.	Listen For "UP,"		Detect/Recognize Target,		Announce "UP."		Search For Hull-Down.
	cisten for "IDENTIFIED."		Announce "IDENTIFIED."		*Listen For "IDENTIFIED."		Listen For Driving Command.
1.	Release Override.		Squeeze Palm Switches. *Select NAR Field Of View. Listen For Oriver Alerts.	0	Identify Announced Round. Listen For Oriver Alerts.		*Continue Search for Hull- Down. Alert Crew Of Obstacles. [
1,	Tuluse/Lack Hetch.		Lay Slightly Below Center Of Mass. *Track Target.	0	Unlock Round From Rack.		Monitor Gages.
¥.	Verity Range Data And GO Light.		Announce "LASING." Press Lase/Lead Button. Listen For "RELASE" or "FIRE."		Remove Round.		Monitor Commends,
13.	Higher) (Lower)		Release/Squeeze Palm Switches.		*Listen For *RELASE.*		Establish Steady Speed/ Direction.
11.	**ress BATL RNG AND RESET		"Adjust Aim, And Repeat Step 9.				
1	COMMUNE "FIRE."		Listen for "FIRE."		Listen for "FIRE."		
Li,	listen for "UN THE MAY,"		Lay On Center Of Visible Mass. Announce "OM THE WAY."	0 0	Listen for "ON THE WAY."		Maintain Steedy Speed/ Direction,
14.	Attempt To Sense.		Squeuze Firing Trigger(s). Continue To Track.		Brace For Recoil,		*Attempt To Sense.
15.	*Annuance Sensing/Observation.	0	Relay On Target Aiming Point. Announce Sensing/Observation. Listen For TC Command.	00	Insure SAFETY In SAFE. Load Round, Listen For TC Command.	_	*Round Sense. Listen For Oriving Command.
In.	*Issue Subsequent Fire Cummand: . Cummanu "DRIVER STOP	0	*Respond To TC Command: . Jo Steps 17-25.		*Respond To TC Commend: . Do Steps 17-25.		*Respond to TC Command:
	. command "REENGAGE," Then Steps 17-25.		. Do Steps 17-25.		, Do Steps 17-25.		. Do Steps 17-25.

	(Cont.)	_					
17.	Press BATL RNG And RESET Buctons.		Lay Slightly Below Center Of Mass. *Track Target.		Insure Path Of Recoil Is Clear. Place SAFETY in FIRE.		Continue Search For Hull- Down. Monitor Commands.
18.	Listen for "UP,"		Listen For "UP." Listen For Oriver Alerts.		Announce "UP." Listen For Driver Alerts.		Alert Crew Of Obstacles.
19.	verify Range Data And GO Light.		Announce "LASING." Press Lase/Lead Button. Listen For "RELASE" and "FIRE."	0	Identify Announced Round, Unlock Round From Rack, Remove Round,	0	Maintain Steady Speed/ Direction.
2 ∪.	*Command *RELASE, AIM (Higher)(Lower)		*Release/Squeeze Palm Switches.	0	*Listen For "RELASE."		
21.	*Press BATL RNG And RESET Buttons.		*Adjust Aim, And Repeat Step 19.				
22.	Command "FIRE."		Lay On Center Of Visible Mass.		"Listen For "FIRE."		
23.	Listen For "ON THE WAY,"		Announce "ON THE WAY."		Listen For "ON THE WAY."		
24.	Attempt To Sense.		Squeeze Firing Trigger(s). *Continue To Track.	0 0	Brace For Recoil.		*Attempt To Sense.
ئ ة.	Repeat Steps 15-16.		Repeat Steps 15-16.		Repeat Steps 15-16.		Repeat Steps 15-16.
26.	Press BATL RMG And RESET Buttons.		*Place MAIN GUN Switch in OFF. Update Fire Control System.	0	Reload/Restow Round. Check Replenisher Tape.	0	Prepare To Change Driving Mode.
27.	Issue Driving Commands: "ORIVER SEEK HULL-DOWN." "ORIVER MOVE OUT." "ORIVER STEER LEFT (RIGHT, STRAIGHT AMEAD)."		Monitor Driving Commands: Look Through Unity Mindow, Listen For Driver Alerts. Brace For Stopping.		Monitor Driving Commands: .*Place Turnet BLOWER in OFF Listen For Driver Alerts Brace For Stopping*Resume Target Search.		Fellow Driving Command: . Adjust Speed/Direction Alert Crew Of Obstacles Stop Tank,
28.	-Repeat Steps 1-16.	_	*Regeat Steps 1-16.		*Repeat Steps 1-16.		"Repeat Steps 1-16.
29.	Acknowledge Crew Reports.		Report Firing Status.		Report Loading Status.		Report Driving Status.

#7. MOVING TANK/BATTLESIGHT TARGET ENGAGEMENT DRILL

	TANK COMMANDER		SUNNER		LOADER	 DRIYER
	Acquire/Identify Target.		yearch for Targets. "Acquire/Identify Target, "Meport Target.		Search for Targets. *Acquire/Identify Target. *Report Target.	Search for Target. *Acquire/Identify Target. *Report Target.
2.	SSUE Fire Command, "GUNNER, BATTLESIGHT, MOVING TANK,"		Insure Announced Ammo Is Indexed. Insure STAB Is ON.		Drop Down Into Turret. *Close/Lock Hatch.	Listen For Driving Command.
i	fullect Oriver Toward Target.		Place MAIN GUN Switch in ON.		Insure Turret Is Clear, *Place Turret BLOWER In ON.	Follow Oriving Command. Detect/Recognize Target.
4.	Cay Sun For Ottection.		Look Through TTS. *Adjust Thermal Channel Range Focus.		Insure Path Of Recoil Is Clear, Place SAFETY In FIRE,	*Steer Toward Target.
٦.	Listen for JUP,"		Detect/Recognize Target,		Announce "UP."	Search For Hull-Down.
٥.	Cisten for ":DENTIFIED."		Announce "!DENTIFIED."		*Listen for "IDENTIFIED."	 Listen For Driving Commands.
٠.	nelease Override.		Squeeze Palm Switches. *Select NAR Field Of View.		Identify Battlesight Round.	 *Continue Search For Hull- Down.
			Listen for Oriver Alerts.		Listen for Oriver Alerts.	Alert Crew Of Obstacles.
١.	*Lluse/Lock match.		Lay On Center Of Visible Mass.		Unlock Round From Rack.	Establish Steady Speed/ Direction.
j.	*Louk Through Rangefinder,		Track Target. Press (iase)/Lead Button.		Remové Round,	Monitor Commands.
u.	Command "FIRE."		Listen For "FIRE."		Listen For "FIRE."	Monitor Gages.
11,	Cisten For "ON THE WAY,"		Announce "ON THE WAY." Make Final Precise Lay.		Listen For "ON THE WAY."	Maintain Steady Speed/ Direction.
ć.	Attemps To Sense.		Squeeze Firing Trigger(s). Continue To Track.	0 0	Srace For Recoil.	*Attempt To Sense.
.	*Annuance Sensing/Observation.		Relay On Target Aiming Point. Announce Sensing/Observation. Listen For TC Command.		insure SAFETY in SAFE. Load Round. Listen for TC Command.	 *Round Sense. Listen For Oriving Command.
4,	"Issue subsequent fire Command: command ORIVER STOP REIMOAGE," Then Steps 15-18.		*Respond To TC Commend: . Do Steps 15-18.		*Respond To TC Commend: . Do Steps 15-18.	*Respond to 10 Command:
	, rice Adjust, Then Steps 15-18		. Apply Currections, Then Steps 15-18.		. 3o Steps 15-48.	. Do Steps 15-18.
	. et ûunner Adjust Fire, Then steps 15-18,		. Fire Adjust, Then Steps 15-18.		. Do Steps 15-18,	. Do Steps 5-15.
	Command (CEASE FIRE, 1 Them Steps 21-23)		. Do Steus 19-23.		. Do Steps 19-23.	. 3o Steps 19-23.
Ų.	Listen Far (UP.)	_	Track Target.		Insure Path Of Recoil Is Clear,	 Continue Search For Hull- Down,
			Press (Lase)/Lead Button.		Place SAFETY In FIRE.	Monitor Commands,
			Listen For TUP, 1		Announce TUP, "	Alert Grew Of Obstacles.

	(Cant)					
łó.	Listen for "ON THE WAY."		Announce "ON THE WAY."	Identify Battlesight Round.		Maintain Steady Speed/ Direction.
			Make Finel Precise Lay.	Unlock Round From Rack.	_	
				Remove Round.		
				Listen For "ON THE WAY."		
17.	Attempt To Sense.		Squeeze Firing Trigger(s).	Brace For Recoil.		*Attempt To Sense.
			*Continue To Track.			
18.	Repeat Steps 13-14.	_	Repeat Steps 13-14.	 Repeat Steps 13-14.		Repeat Steps 13-14.
19.	· · · · · · · · · · · · · · · · · · ·		*Place MAIN GUN Switch In OFF.	Reload/Restow Round.		Prepare To Change Driving Mode.
20.			Update Fire Control System,	Check Replenisher Tape.		
21,	Essue Oriving Commands:		Monitor Driving Commands:	Monitor Oriving Commands:		Follow Driving Commands:
	. "DRIVER SEEK HULL-DOWN."		. Look Through Unity Window.	.*Place Turret BLOWER In OFF.		. Adjust Speed/Direction.
	. "DRIVER MOVE OUT."		. Listen For Driver Alerts.	. Listen For Oriver Alerts.		. Alert Crew Of Obstacles.
	. "ORIVER STEER LEFT (RIGHT,		. Brace for Stopping.	. Brace For Stopping.		. Stop Tank.
	STRAIGHT AHEAD)."			.*Resume Target Search.		
	. "ORIVER STOP."			 		
22.	*Repeat Steps 1-14.		"Repeat Steps 1-14.	 *Repeat Steps 1-14.		*Repeat Steps !-14.
23.	Acknowledge Crew Reports.		Report Firing Status.	 Report Loading Status.		Report Driving Status.

#8. MOVING TANK/COAX TARGET ENGAGEMENT DRILL PROCEDURES GUIDE

	TANK COMPANDER	-	GUNNER		LOADER		DRIVER
۱.	Acquirez Edentity Target.		Search for Targets. *Acquire/Identify Target. *Report Target.		Search for Targets, "Acquire/Identify Target, "Report Target,		Search for Target. **Acquire/Identify Tirret. *Report **Preet.
₹.	Essue Fire Command: "GUNNER, COAX, TROOPS."	ō	Press MEP/MP Button, Insure STAB is ON, Insure MAIN GUN Seitch in OFF,	_	*Orop Down Into Turret, **Close/Lock Hatch, Insure Turret Is Clear,		Listen For Oriving Command.
1.	furrest Univer Toward Tanget.		Place MACHINEGUM Switch in ON, LOOK Through ITS.		*Place Turret SLOWER In ON. Insure Coax Is Loaded/Charged.	ā	follow Oriving Command, Detect/Recognize Tarset,
4.	Lay wan fur Olrection.		*Aujust Thermal Channel Range Focus.		Place Machinegun SAFETY in F.		*Steer Toward Target.
i.	Ciscen Fam TUP."		Detect/Recognize Target.		Announce "UP,"	□	Search For Hull-Onem Ensitions,
•	Listen for "IDENTIFIED."		Announce "IDENTIFIED."		"Listen For "IDENTIFIED,"		Listen For Orlying Commands
,	delease Override.		Squeeze Pale Switches, *Select NAR Field Of Ylew, Listen For Driver Alerts,	00	Listen for Oriver Alerts.		*Continue Search for Multi- Down Fositions, Alert Crew Of Obstacles,
3.	*Cluse/Lock Hetch.		Lay On Centur Of Target Area, *frack Target.		Monitor Coss/Ammo Belt,	٥	Monitor Gages,
•.	verity Hange Date and GO Light,		Announce "LASING." Press Lase/Leed Button, Listen for "RELASE" or "FIRE."				Monitor Commands.
J	"nigher][Luder]		"Release/Squeeze Palm Switches.		*Listen For *RELASE,*		
t	Tress BATL RAG AND RESET Buttons:		Adjust Alm And Repeat Step 9.				
2.	cumuna "FIRE."		Listen for 'FIRE.'		Listen for "FIRE."		Maintain Steady Screen.
٠.	cisten for 10% thE WAT, 1		Annotice "ON THE WAY,"		Listen For "ON THE WAY."		
• .	utserie Tracer (mpact.		Fire 25-30 Round Burst Using 2 Pettern.		Observe Tracer Impact.		Observe Tracer Impact.
			*Continue to Track.				
	Tinnuunce tensing/Observation.		*Announce Sensing/Observation. Listen for CC Command.		*Round Sense, Listen For TC Command.		*Round Sense.
с.	*Issue Subsequent Fire Command: Command, 188(NG IT UP (DOWN), *LEFT (Right),* Then Steps IJ-		Respond To TC Command: . Apply Corrections, *nen Steps 13-16,		Respond To TC Command: . Do Steps 13-16.	\Box	Respond To TC Commune . Do Steps F3-16.
	Steps 17-20,		. 0g Steps 17-20.		. Do Steps 17-20,		, On Steps (7.20
۲.	Press BATL Rise And RESET Sections.	<u>_</u>	Place MACHINEGUM Switch In OFF, Press SABOT (HEAT) Button.	0	Place SAFETY In S.		Maintain Steedy Sceen*
a.	Essue Oriving Comminds: "Oriving SEER MULL-OOMS," "THISTER SEEM LEFT (RIGHT, JOHALUM AREAG)," "Alived STOP,"	0	Monitor Oriving Commends: View Through Unity Hindow, Listen for Oriver Alerts. Brace for Stopping.	0	Monitor Oriving Commends: .*Place Turnet BLOWER in OFF Listen For Oriver Alerts, . Brace For Stoeping, .*Resume Target Search,		Follow Driving Commands
•	"Meyest Steps 1-16.	_	*Repeat Steps 1-16.		*Repeat Steps 1-16,		*Pepeat Steps 1-16.
	Icenswiedya Crew Reports.		Report Firing Status.		Report Loading Status.		Pepart Driving Status.

#9. MOVING TANK/MOVING TARGET ENGAGEMENT DRILL PROCEDURES GUIDE

	TANK COMMANDER	 GUNNER		LOADER		DRIVER
١.	Acquire/Identify Target.	Search For Targets. *Acquire/Identify Target. *Report Target.		Search For Targets. *Acquire/Identify Target. *Report Target.		Search For Target. *Acquire/Identify Target. *Report Target.
2.	Issue Fire Command "GUNHER, SABOT (HEAT), MOVING TANK."	Insure Announced Ammo Is Indexed. Insure STAB Is ON.		Drop Down Into Turret. *Close/Lock Hatch.		Listen For Driving Command.
3,	*Direct Oniver Toward Target.	Place MAIN GUN Switch In ON.		insure Turret Is Clear. Place Turret BLOWER In OM.		Follow Driving Command. Detect/Recognize Target.
4.	Lay Gun For Olrection.	Look Through TTS. *Adjust Thermal Channel Range Focus.		Insure Path Of Recoil Is Clear. Place SAFETY In FIRE.		*Steer Toward Target.
5.	Listen For "UP."	Detect/Recognize Target.		Announce "UP,"		Search For Hull-Down Positions.
Ó.	Listen For "IDENTIFIED."	Announce "IDENTIFIED."		*Listen r *IDENTIFIED.*		Listen For Driving Command.
7.	Release Override.	Squeeze Palm Switches.		Identify Announced Round.		*Continue Search For Hull- Down.
		"Select NAR Field Of View. Listen For Oriver Alerts.		Listen For Oriver Alerts.		Alert Crew Of Obstacles.
d.	*Close/Lock Hatch.	Lay Slightly Below Center Of Mass. *Track Target,		Unlock Round From Rack.		Establish Steady Speed/ Direction.
₹.	Verify Range Data And GO Light.	Announce "LASING." Press Lase/Lead Button. Listen For "RELASE" or "FIRE."		Remove Round,		Monitor Commands.
٠٥.	*Command "RELASE, AIM [Higher](Lower)	*Release/Squeeze Palm Switches.		*Listen For "RELASE."		
11.	*Press DATL RNG And RESET Buttons.	"Adjust Aim and Repeat Step 9.	J			
٠4.	Julimand "FIRE."	Listen for "FIRE."		Listen For "FIRE."		Monitor Gages.
١.	Listen For "ON THE WAY."	Lay On Center Of Visible Mass. Announce "ON THE WAY."		Listen For ⁴ ON THE WAY.		Maintain Steady Speed/ Direction.
14.	Attempt To Sense.	Squeeze firing Trigger(s). Continue Tracking.		Brace For Recoil.		*Attempt To Sense.
1.	*Announce Sensing/Observation.	 Relay On Target Aiming Point. Announce Sensing/Observation. Listen For TC Command.	0	Insure SAFETY In SAFE, Load Round. Listen For TC Command.	_	*Round Sense. Listen for TC Command.
٠٥.	*Issue Subsequent Fire Command: . Command "REENGAGE," Then Steps 17-25.	"Respond To TC Command Do Steps 17-25.		*Respond To TC Command: . Do Steps 17-25.		*Respond To TC Command:
	Tormand "ORIVER STOP	. Do Steps 17-25.		. Do Steps 97-25.		. Stop Tank, Then Do Steps 'S and 16.
	Lammand "CEASE FIRE," Then Steps 26-29.	 . Do Steps 26-29.		. Do Steps 26-29.		. Do Steps 26-29.

	(Cont)		_			
17.	Press dATL RNG And RESET Buttons.	Lay Slightly Below Center Of Mass. *Track Target.		Insure Path Of Recoil is Clear. Place Safety in FIRE.		Continue Search For Hull- Down. Monitor Commands.
18.	Eisten For "UP."	Listen for "UP." Listen for Driver Alerts.		Announce "UP." Listen For Driver Alerts.		Alert Crew Of Obstacles.
19.	Verify Range Data And GO Light.	Announce "LASING." Press Lase/Lead Button. Listen for "RELASE" and "FIRE."	0	Identify Announced Round. Unlock Round From Rack. Remove Round.		Maintain Steady Speed/ Direction.
20.	"Command "RELASE, AIM (Higher)(Lower)	*Release/Squeeze Palm Switches.		"Listen for "RELASE."		·
21	*Press BATL RNG And RESEY Suttons.	*Adjust Aim And Repeat Step 19.				
22.	Cummand "FIRE."	Lay On Center Of Visible Mass.		"Listen For "FIRE."		Monitor Gages.
23.	Listen for "OR THE WAY."	Announce "ON THE WAY."		Listen for "ON THE WAY."		
24,	Attempt To Sense.	Squeeze Firing Trigger(s). *Continue To Track.	0 0	Brace For Recoil.		"Attempt To Sense.
25.	Repeat Steps 15-16,	Repeat Steps 15-16.		Repeat Steps 15-16,		Repeat Steps 15-16.
20 .	Press BATL RNG And RESET Buttons.	*Place MAIN GUN Switch In OFF, Update Fire Control System.		Reload/Restow Round. Check Replenisher Tape.	0 0	Prepare To Change Oriving Mode.
27.	Issue Oriving Commands: . "DRIVER SEEK HULL-DOWN." . "DRIVER MOVE OUT." . "DRIVER STEER LEFT (RIGHT. STRAIGHT AHEAD)." . "DRIVER STOP."	Monitor Driving Commands: Look Through Unity Mindow. Listen For Driver Alerts. Brace For Stopping.	0	Monitor Driving Commands: .*Place Turret BLOWER in OFF, . Listen For Oriver Alerts Brace For Stopping*Resume Target Search.		Follow Driving Commands: , Adjust Speed/Direction, , Alert Crew Of Obstacles, , Stop Tank.
28.	*Repeat Steps 1-16.	 *Repeat Steps 1-16.		*Repeat Steps 1-16.		*Repeat Steps 1-16.
29.	Acknowledge Crew Reports.	 Report Firing Status.		Report Loading Status.		Report Driving Status.

#10. RANGE CARD ENGAGEMENT DRILL

	TANK COMMANDER	GUNNER		LOADER		DRIVER	
١.	Receive Platoon Leader Fire Command.	*Search for Target. *Acquire/Identify Target. *Report Target.		Listen For Fire Command.		Listen For Fire Command	
₹.	Command: "GUNNER, HEP, AREA FIRE."	*Insure Turret Power Is ON. Place MAIN GUN Switch in ON.	٥	Insure Turret Is Unlocked/Clear, *Place Turret BLOMER In ON.		Start Engine. Insure Brakes Are Locked.	
3.	*Ubcain/Review Range Card.	Insure HEP/WP is indexed		Insure Path Of Recoil Is Clear. Place SAFETY In FIRE.		Remove Hands From T-Bar. Maintain Engine RPM.	
4.	Listen for "UP,"	Listen For "UP."		Announce "UP."		Monitor Gages.	
5.	Announce "DEFLECTION"	Grasp Manual Traverse Handle. Traverse To Announced Deflection. Release Handle.	00	Identify HEP Round.		Monitor Commands	
ó.	Verify Deflection Readback.	Repeat "DEFLECTION"		Unlock HEP From Rack.			
1.	Announce Range.	Grasp Range Wheel. Set Announced Range. Check Mil Counter. Release Wheel,		Remove HEP.		Maintain Engine RPM. [
d.	Verify Range Readback.	Repeat "RANGE" Grasp Manual Elevation Control.	00				
9.	Announce "QUADRANT"	index Announced Elevation On Quadrant. Center Bubble On Elevation Quadrant.	0				
10.	Verify Quadrant Readback.	Repeat "QUADRANT"				Monitor Gages.	
11.	Command "FIRE."	Listen for "FIRE."		Listen for "FIRE."			
12.	Listen for "ON THE WAY."	Announce "DN THE WAY."		Listen for "ON THE WAY,"			
13.	urace for Recoil,	Pause 1 Second. Squeeze Firing Trigger,		Brace For Recoil.		Brace For Recost.	
4.	Munitor Fire Adjustment.	Check Deflection. Add 1 Mil. Center Bubble.	00	Insure SAFETY In SAFE, Load MEP, Insure Path Of Recoil Is Clear,	_	Monitor Commands.	_
۵.	Listen for "UP."	Listen For "UP."		Place SAFETY In FIRE. Announce "UP."		Maintain Engine RPM.	⊐
6.	Listen For "ON THE WAY."	Announce "ON THE WAY."		Identify MEP. Unlock MEP From Rack. Remove MEP. Listen For "OM THE WAY."	00	Monitor Gages.	
1.	Brace For Recoil.	Pause I Second. Squeeze Firing Trigger,		Brace For Recoil.		Brace For Recoil,	

	(444)				
18.	Monitor Fire Adjustment.	Check Deflection.	Insure SAFETY In SAFE,	Monitor Commands.	
		Drop 2 MILS.	Load HEP.		
		Center Subble.	insure Path Of Recoil Is Clear.		
19.	Repeat Steps 15-17.	Repeat Steps 15-17.	Repeat Steps 15-17.	Repeat Steps 15-17.	
23.	Monstor Fire Adjustment.	Add 1 MSL.	Insure SAFETY In SAFE.	 Monitor Commands.	
		Traverse RIGHT 50 MILS.	Load HEP.		
		Center Bubble.	Insure Path Of Recot! Is Clear.		
21.	Repeat Steps 15-17.	Repeat Steps 15-17.	Repeat Steps 15-17.	Repeat Steps 15-17.	
22.	Monitor Fire Adjustment.	Traverse LEFT 100 MILS.	Insure SAFETY In SAFE.	 Monitor Commands.	
		Center Bubble.	Load HEP.		
			Insure Path Of Recost Is Clear.		
23.	Repeat Steps 15-17.	Repeat Steps 15-17,	Repeat Steps 15-17.	Repeat Steps 15-17.	
24.	Cummand "CEASE FIRE."	Place MAIN GUN Switch in OFF.	Insure SAFETY In SAFE.	*Release Brakes.	
			Reload/Restow HEP.		
			*Place Turret BLOWER in OFF.		
25.	Return Gun To Primary Target.	Follow TC Commands.	Check Replenisher Tape.	Listen For Driving Com	mand,
		Resume Target Search.	Remove Spent Casings.		
2á.	Acknowledge Crew Reports.	Report Firing Status.	Report Loading Status.	Report Firing Status.	

#11. RANGE CARD LAY TO DIRECT FIRE TARGET ENGAGEMENT DRILL PROCEDURES GUIDE

	TANK COMMANDER	GUNNER	_	OADER		DRIVER	_
1.	Receive Platoon Leader Fire Command			Listen for Fire Command.		Listen For Fire Commend.	
2.	COMMAND TOUNNER DIRECT FIRE, MOER HEP, FIRE	*Insure Turret Power is ON. Place MAIN GUN Switch in JN. Insure HEP/MP is Indexed.	_	Insure Turret is Unlocked/Clear. Insure SAFETY in SAFE.		"Start Engine.	C
3.	*Obtain/Review Range Card.	Look Through Periscope,		Open Breech Manually.		Insure Brakes Are Depres	s s e
4.	Announce "	Make Mental Note Of Target,		Remove HEP Round.		Remove Hands From T-Bar.	
3	Announce "DEFLECTION"	Grasp Manuel Traverse Handle, Traverse To Announced Deflection, Release Handle,	00	Stow MEP in Rack.		Maintain Engine RPM.	C
٥.	ferify Letlection Readback.	Repeat "DEFLECTION		identify Announced Round. Unlock Round From Rack.		Monitor Commands.	
				Remove Round.			
7.	Announce Hange.	Grasp Range Wheel, Set Announced Range, Check Hill Counter, Release Wheel,	0 0	Load Round.			
3.	Verify Range Readback.	Repeat "RANGE"		Identify Announced Round.		Monitor Gages.	
9.	Announce "QUADRANT"	Gresp Manuel Elevation Control. Index Announced Elevation On Quadrant. Center Bubble. Release Control.	000	Jnlock Round From Rack. Remove Round.	.		
J.	Verify Quadrant Readback.	Repeat "QUADRANT"		Insure Path Of Recoil Is Clear.			
η,	Listen for " [NDEXED."	Announce " [NDEXED."		Listen For "IDENTIFIED."			
		Place MANUAL/RANGEFINDER Switch In RANGEFINDER.					
2.	*Logs Through Rangefinder,	Lock Through Periscope.		*Place Turret BLOWER In ON.		Monitor Commands.	_
3.	Acquire/identify Target When [1] uminated.	Detect/Recognize Target,					
4.	Cisten for "IDENTIFIED."	Announce "IDENTIFIED." Squeeze Palm Switches.		Place SAFETY in FIRE.		Maintain Engine RPM,	
15.	Listen For 13P.1	Lay Slightly Below Center of Mass. "Track Target. Listen For "UP."	0.0	Announce "UP."		Monitor Gages.	
6.	verify Range Data And GO Light,	Announce "LASING." Press Lase/Lead Button. Listen For "RELASE" or "FIRE."					
,	*Conmand 'RELASE, AIM	*Release/Squeeze Palm Switches.		*Listen For "RELASE."			

	(cont)						
18.	Press BATL RNG And RESET duttons.	*Adjust Aim And Repeat Step 16.					
19.	Command "FIRE."	Listen for "FIRE."		Listen For "FIRE."			
20.	Listen For "ON THE WAY."	Lay On Center Of Visible Mass.		Listen for "ON THE WAY."			
		Announce "ON THE HAY."	ō				
21.	Attempt To Sense while Protecting Night Vision	Squeeze firing Trigger(s),		Brace For Recoil.		Brace For Recoil.	
	From Blast.	Protect Night Vision.				*Protect Night Vision.	
		 *Continue To Track.					
22.	*Announce Sensing/Observation.	Relay On Target Aiming Point,		Insure SAFETY In SAFE.		Listen For Driving Comma	na.
		Announce Sensing/Observation,		Load Round.			
		Listen For TC Command.		Listen For TC Command.			
٤غ.	*Issue Subsequent Fire Command:	*Respond To TC Commend:		*Respond To TC Command:		*Respond To TC Command:	
	. Journand "REENGAGE," Then Steps 24-32,	. Oo Steps 24-32,		. Do Steps 24-32.		, Do Steps 24-32.	
	. Command "CEASE FIRE," Then Steps 33-36.	. Do Steps 33-36.		. Do Steps 33-36.		. Do Steps 33-36.	
24,	Press BATL RNG And HESET Buttons.	Lay Slightly Below Center Of Mass.		Insure Path Of Recoil is Clear.		Monitor Commends.	_
	succurs.	*Track Target.		Place SAFETY In "FIRE."			
25.	Listen For "UP."	Listen For "UP."		Announce "UP."		Maintain Engine RPM.	
26.	Verify Range Data And GO Light.	Announce "LASING."		Identify Announced Round.			
		Press Lase/Lead Button.		Unlock Round From Rack.			
		Listen For "RELASE" and "FIRE,"		Remove Round,			
27.	"Cummand "RELASE, AIM (Higher)(Lawer)	"Release/Squeeze Palm Switches.		*Listen For "RELASE."			
28.	*Press dATL RNG And RESET Buttons.	*Adjust Aim And Repeat Step 16.					
29.	Command "FIRE."	Lay On Center Of Visible Mass,		cisten For "FIRE."		Monitor Gages.	
۵٥.	Listen For "OH THE WAY."	Announce "ON THE WAY."		Listen for "ON THE WAY,"			
31.	Attempt To Sense While	Squeeze Firing Trigger(s).		Brace For Recoil.		Brace For Recoll.	
	Protecting hight Vision From Blast.	Protect Night Vision.				*Protect Night Vision.	
		*Continue To Track.					
12.	Repeat Steps 22-23.	Repeat Steps 22-23.		Repeat Steps 22-23.		Repeat Steps 22-23.	_
IJ.	Press BATL RNG And RESET	*Place MAIN GUN Switch In OFF.		Reload/Restow Round,		Prepare To Back Up.	_
	Buttons.	Update Fire Control System,		Check Replenisher Tape.	\Box		
14.	Issue Oriving Commands:	Monitor Driving Commands:		Monitor Oriving Commends:		Fallow Driving Commands:	
	. "DRIVER BACK UP , STOP."	. Yiew Through Unity Window.		.*Place Turret BLOWER In OFF.		Adjust Speed/Direction.	
	"OREVER BACK UP STOP. FURN RIGHT (LEFT). HOVE TO	. Listen for Driver Alerts.		. Listen For Driver Alerts.		, Alert Crew Of Obstacles	
	ALTERNATE POSITION	. Brace for Stopping.		. Brace For StoppingResume Target Search.		. Stop †ank.	
35.	*Repeat Steps 1-23.	 *Repeat Steps 1-23.		*Repeat Steps 1-23.		*Repeat Steps 1-23.	
Зо.	Acknowledge Crew Reports.	 Report Firing Status.		Report Loading Status.	_	Report Oriving Status.	-

Table B-1
CREW DRILL TARGET ENGAGEMENT REQUIREMENTS
FOR MGDA3 TANK CREWS

-	¥ å												
WEAPON SYSTEM FAILURES	TURRET	\neg											
YSYEH F	Q												
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	OPEN	DAV						-					
	CHEW DRILLS		Single - Main Gun Stationary vs. Stationary GNR - 115 - Precision	Single - Main Gun Stationary vs. Moving GNR - 115 - Prectsion	Single - Main Gun Stationary vs. Moving GWR - Telescope - Precision	Simultaneous - Main Gun/Cal .50 Stationary vs. Mov/Stationary TTS/PER - Pre/Suppress	Multiple - Main Gun Stationary vs. Moving GMR - TTS - Preciston	Single - Main Gun Moving vs. Stationary GNR - TTS - Precision	Single - Main Gun Moving vs. Stationary GMR - TIS - Battlesight	Single - Coax Machinequn Moving vs. Stationary GMR - TTS - Precision	Single - Main Gun Moving vs. Moving GNR - TTS - Precision	Single - Main Gun Stationary vs. Stationary GNR - Auxiliary - Range Card	Single - Main Gun Stationary vs. Moving GNR - Range Card to Direct Fire
			<i>-</i> :	~	۳.	÷	· .	و		eć	6		=

NUTE: For each Crew Orill accomplished, record the date on which training began and ended. Make certain the last date entered is initialed by the platoon leader/sergeant for certification.

Table B-2

MGOA3 EQUIPMENT CONDITIONS BY CREW DRILL CREW DRILL

IC STATION	H	-	-	-	5	9		₽	6	2	F
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GUN SAFETY Switch in OFF	•	ï		×	,			,		1	•
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ELEV/TRAY POWER Switch in ON	× >	××	× :	××	× >	× :	* >	×,	× ,	× ×	× >
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Tank Moving At 10-20 MPH	•					×	*	×	×	,	

APPENDIX C. CREW DRILLS FOR M60A1(AOS) TANK GUNNERY

TANK GUNNERY CREW DRILLS TRAINING

INTRODUCTION: The key to successful team performance is practice. For example, the top teams in professional sports are those that continuously practice the basic things that make them successful. When they work out, their practice sessions are serious and dedicated to being the best both individually and as a team. They're willing to pay the price so they accept the hard work and the time it takes to get it right. When game time comes around they're ready. They not only know their individual assignments, but they have acquired the team skills and timing necessary to win.

The tank gumnery crew drills are the basic things that your tank crew must practice to be successful in combat. They are the gunnery engagement procedures that your tank crew will most likely perform on the next battlefield and must execute perfectly to win and survive. When the flag drops your tank crew will have to out-maneuver and outshoot an enemy superior in number and capable of blowing you away. If your tank crew hesitates in putting steel on target immediately, almost automatically, they will not survive. To be ready for combat you and your Al tank crew must be totally committed to going the whole nine yards. Under your leadership, they must be willing to practice until everyone has acquired both the individual and team gunnery skills to win.

There is no other answer!

CHARACTERISTICS: There are 13 crew drills considered fundamental to M60Al (AOS) gumnery. Each crew drill has a procedures guide which identifies the performance steps crewmembers must make during each phase of an engagement. It also identifies the more critical gumnery steps that can be observed to checkout individual crewmember performance. These tank gumnery crew drills are designed specifically for open hatch operations during daylight and without the use of live ammunition. More realistic battlefield conditions that can be exercised when dry-firing each crew drill are outlined in Table C-1. Specific equipment conditions that must be established prior to crew drills training are presented in Table C-2.

RESPONSIBILITIES: You, the tank commander, are the primary trainer for crew drills. It is your responsibility to provide each crewmember with the training required to successfully perform each of the engagements. Every opportunity, scheduled and unscheduled, must be seized to train your crew. Platoon leaders/ sergeants should be looked to for training assistance. However, it is your tank crew and how well they perform in combat will depend entirely on how well you prepared them during training.

TRAINING APPROACH: To accomplish crew drill training, the following approach is recommended:

- 1. Introduce the Crew Drill. State the task to be trained and the performance standards specified in FM 17-12-2. Point out the importance of conducting the crew drill, why it is being trained using dry-fire methods, and how it relates to gunnery performance expected on the battlefield.
- 2. Demonstrate. Talk each crewmember through the tank gunnery procedure using the procedures guide. Show them where their individual performances contribute collectively to the success or failure of the gunnery engagement. Using the asterisked (*) items, show them how a performance step might be included during an engagement.
- 3. <u>Get Set-up</u>. Instruct your crew to enter the tank. When ready, conduct: a prepare-to-fire check. Next, select the battlefield condition to be trained (Table C-1), and set-up the equipment (Table C-2). For the purpose of dry-fire training, tell the loader to leave the breech open for loading a "second" round, and to assume a battlesight condition. Tell the gumner to simulate the actual firing of a live main gum round and to announce a round sensing.
- 4. Practice. Issue an appropriate fire command to begin the engagement. Proceed gradually, reviewing each crewmember's individual task performance. When an error is noted that can be easily fixed, provide immediate hands—on instruction. Otherwise, notify him of the deficiency and arrange for remedial training. If more timing and coordination is required between two crewmembers, arrange the time to let them practice. Repeat the engagement as often as necessary to meet the crew drill standards.
- 5. Train For Combat. Increase the difficulty of the task by practicing it under the remaining battlefield conditions identified in Table C-1. Close the hatches, put on protective masks, use manual controls, simulate a threeman crew, and practice what is required when there are weapon system failures.
- 6. Get Certified. Once your tank crew has mastered a given crew drill across all battlefield conditions, contact your platoon leader or sergeant and ask him to certify your tank's readiness. Have him review your performance and record your progress on Table C-1.

STATIONARY TANK/STATIONARY TARGET ENGAGEMENT DRILL

	TANK COPMANDER	GUNNER		LOADER	_	DRIVER	=
١.	Acquire/Identify Target.	Maintain Fire Control System. !lonitor Commands.		Search For Targets. *Acquire/Identify Target. *Report Target.		Maintain Ergine PPF . Honitor Gages. Monitor Commands.	
2.	Issue Fire Command			Drop Down Into Turret. *Close/Lock Hatch.		Listen For Driving Command	d,
3.	Lay Gun For Direction.	Look Through Telescape.		Insure Turret Is Unlocked/Clean "Place Turret Blower In OM.	·.	*Release Brakes.	
4.	Command "DRIVER MOVE OUT, GUNNER TAKE OVER."	Issue Driving Command.	0	Insure Path Of Recoil Is Clear	•	Shift To L. Drive Yank Forward.	0
5.	Listen For "DRIVER STOP."	Insure Gun Is Clear Of Terrain. Announce "DRIVER STOP."	0	Place SAFETY In FIRE.	0	Listen For Driving Comman Stop Tank.	d.
6.	Listen For "UP."	Look Through Periscope. Detect/Recognize Taraet. Listen For "UP."		Announce "UP."	0	Hold Brakes Depressed. Shift to R.	0
1.	Listen For "IDENTIFIED."	Announce "IDENTIFIED."	0	Listen For "IDENTIFIED."		Remove Hands From T-Bar,	۵
8.	Release Override	Squeeze Palm Switches		Identify Announced Round,		Maintain Engine RPMs.	
9.	*Close/Lock Match.	Lay On Target Center Of Mass.	0				
Ic.	Look Through Rangefinder	Listen For "FIRE."		Unlock Round From Rack.		Monitor Commands.	
n.	Range To Target.	1		Remove Round,			
12.	Command "FIRE."	1		Listen for "FIRE,"		Monitor Gages,	
13,	Listen For "ON THE WAY."	Announce "OM THE WAY." Nake Finel Lay.		Listen for "ON THE WAY."			
14,	brace for Recoff.	Fause 1 Second. Squeeze Firing Trigger(s).	0	frace For Recoil.		Erace For Recoll.	
15.	*Announce Sensing.	Relay On Target Aiming Point, Announce Sensing, Listen For TC Command,	0	Insure SAFETY In SAFE, Load Round, Listen for TC Command,	0	Listen for Eriving Comman	d.
Ιö.	*Issue Subsequent Fire Command: [-		*Respond to to Command:	O	*Respond To TC Command;	D
	. Fire Adjust, Then Steps 17-20 Let Gunner Adjust Fire,	. Apply Corrections, Then Steps 17 . Fire Adjust, Then Steps 17-20.	-20.	. Do Steps 17-20.		. Do Steps 17-20, , Do Steps 17-20,	
	Then Steps 17-20,	. Do Steps 21-23,		. Do Steps 21-23.		. Do Steps 21-23,	
				gan — offentingen a gang also with makers or common secundaris to the			

Π.	Listen For "UP."		Listen for "UP,"		Immore Path Of Recoll' Is Clear	•	Monitor Commends.	
			*Track Target.		Place SAFETY In FIRE,		Monitor Gages.	
			*Apply Lead.		Announce "6P,"			
18.	Listen for "ON THE WAY,"		Announce "ON THE WAY."		Identify Announced Round.		Maintain Engine RPM-,	0
			Hoke final Lay,		Unlock Round from Rack.			
					Remove Round.			
					Listen for "OR THE WAY,"			
19.	Brace For Recoil,		Pause 1 Second.		Brace For Recoif.		Brace For Recoil.	
			Squeeze Firing Trigger(s).					
			*Continue To Track.					
20.	Announce Sensing,		Relay On Target Aiming Point.	0	Insure SAFETY In SAFE.		Listen For Driving Command.	•
			Announce Sensing.		Load Round.			
,			Listen For TC Commend.		Listen For TC Command,			
21.	Issue Subsequent Fire Command:		Respond To TC Command:		Respond To TC Commend:		Respond To TC Commend:	
	. Command "CEASE FIRE."		. Place MAIN GUN Switch In OFF.		.*Place Turret Blower In OFF.		, Prepare To Drive Rearward,	_
					, Reload/Restou Amma,			
224.		_	Update Fire Control System.		Check Replenisher Tape.		Follow Oriving Commands.	
	Alternate Firing Position.				Remove Spent Casings.			
					Resume Target Search.			
23.	Acknowledge Crew Reports,		Report Firing Status.		Report Loading Status.		Report Driving Status.	
					Resume Target Search,			

STATICHARY TAHK/MCVING TAPGET ENGAGEMENT DRILL

	TANK COMMANDER	 -	GUNNER	TL: XI =	LOADER		DRIVER	==
1.	Acquire/Identify Target.		Maintain fire Control System Monitor Commands.		Search For Targets. *Acquire/Identify Torget. *Keport Target.		Maintain Engine PPM . Monitor Gages. Monitor Commands.	
2.	Issue Fire Command.		Insure Turret Power Is ON, Insure Announced Ammo Is Indexed. Place MAIN GUN Switch In ON,		Drup Down Into Turret. *Close/Lock Hatch.	••	Listen For Driving Command	1.
3.	Lay Gun for Direction.	a	Look Through Telescope.		Insure Turret 1s Unlocked/Cle *Place Turret Blower In ON.	ear.	*Release Brakes.	
4.	Command "ORIVER MOVE OUT, GUNNER TAKE OVER,"	0	Issue Driving Command.		Insure Path Of Record is Clea	ar,	Shift To L. Drive Tank Forward.	ב
5.	Listen For "DRIVER STOP."		Insure Gun Is Clear Of Terrain. Aunomoca "DRIYER STOP."	0 0	Place SAFETY In FIRE,	0	Listen for Driving Comman Stop Tank,	d.
6.	Listen For "UP,"		Look Through Periscope. Detect/Recognize Target. Listen For "UP."		Announce "UP."		Hold Brakes Depressed. Shift To R.	C
1.	Listen For "IDENTIFIED."		Announce "IDENTIFIED."		Listen for "IDENTIFIED."		Remove Hands From T-Bar.	
8.	Release Override	. .	Squeeze Palm Switches		Identify Announced Round,		Maintain Engine RPMs.	
9.	*Close/Lock Match.		tay On Target Center Of Mass.					
10.	Look Through Rangefinder.		Track Target.		Unlock Round From Rack.		Monitor Commands.	
11.	Range To Target,		*Apply Lead.		Remove Round.	0		
12.	Commend "FIRE."		Listen for "FIRE."		Listen for "FIRE."		Monitor Gages.	
13.	Listen For "ON THE MAY."		Announce "CH THE WAY," Make Final Lay.	0	Listen For "OK THE WAY."			
14.	Brace For Recoil.		Fause 1 Second. Squeeze Firing Trigger(s). Continue Tracking.	0	Brace For Recoff.		Erece For Recoll	
15.	*Announce Sensing.		Pelay On Target Aiming Point. Amounce Sersing. Listen For Tollown.	0	Insure SAFETY in SAFE. Load Round,	0	Listen For Criving Command	-
16.	*Issue Subsequent Fire Command;		*Respond To TC Command:	0	*Respond Tu FC Cummand:		*Respond to TC Command:	
	Fire Adjust, Then Steps 17-21	0.	. Apply Corrections, Then Steps 17-2	υ.	. Do Steps 17-20,		. On Steps 17-20,	_
	. Let Gunner Adjust fire, Then Steps 17-20.		. Fire Adjust, Then Steps 17-20.		. Do Steps 17-20.		. Do Steps 17-20.	
	Command "CEASE FIRE," Then Steps 22-23,		. Do Steps 21-23.		. Do Steps 21-23,		. Do Steps 21-23.	

18. Listen For "OM THE MAY."		*Track Target. *Apply Leed.	Place SAFETY In FIRE. Announce "UP."		Monitor Gages.
18. Listen for "ON THE WAY."			Announce "IIO "		
18. Listen For "ON THE MAY."			Announce or .		
		Announce "ON THE WAY."	Identify Announced Round.		Maintain Engine RPM .
		Make Final Lay.	Unlock Round From Rack.		
			Remove Round.		
			Listen for "OR THE WAY."		
19. Brace For Recoil.		Fause 1 Second.	Brece For Recoil.		Brace For Recoff.
		Squeeze Firing Trisger(s).			
		*Continue To Track.			
20. Announce Sensing.		Relay On Target Aiming Point.	Insure SAFETY In SAFE.	_	Listen For Driving Command.
		Announce Sensing	Load Round.		
		Listen For TC Command.	Listen For TC Command.		
21. Issue Subsequent Fire Co	mand:	Respond To TC Command:	Respond To TC Command:		Respond To TC Command:
. Command "CEASE FIRE."		, Place MAIN GUN Switch In OFF.	.*Place Turret Blower In OFF.		, Prepare To Drive Rearward,
			,*Reload/Restow Ammo		
22. Move To Turret Down OR		Update Fire Control System.	Check Replemisher Tape.		Follow Driving Commends.
Alternate Firing Positio	n. 🔲		Remove Spent Casings.		
			Resume Target Search.		
23. Acknowledge Crew Reports		Report Firing Status.	Report Loading Status.		Report Oriving Status.

STATIONARY TANK/TELESCOPE ENGAGEMENT DELLE

	TANK COMMANDER	GUNNER		LOADER		DRIVER	-
1.	Acquire/Identify Target.	Mointain Fire Control System. Monitor Commands.		Search for Targets. *Acquire/Identify Target. *Peport Target.		Maintain Engine FPM . Monitor Gages. Monitor Commands.	-
2,	Issue Fire Command.	Insure Turret Power Is ON, Place MAIN GUN Switch in ON,		Drop Down Into Turret. *Close/Lock Hatch.		Listen For Driving Command.	
3.	Lay Gun For Direction.	Look Through Telescope.	cope.	Insure Turret Is Unlocked/Clear		*Release Brakes	
4,	Command "DRIVER MOVE OUT, GUNNER TAKE OVER,"	Issue Driving Command,		Insure Path Of Recoil Is Clear		Shift To L. Drive Tank Forward,	0
5.	Listen for "DRIVER STOP."	Insure Gun Is Clear Of Terrain. Announce "DRIYER STOP."		Place SAFETY In FIRE.	0	Listen For Driving Command.	
6.	Listen For "UP."	Detect/Recognize Target. Listen For "UP."		Announce "UP."	0	Hold Brakes Depressed. Shift To R	0
7	Listen For "IDENTIFIED."	Announce "IDENTIFIED."		Listen For "IDENTIFIED."		Remove Hands From Y-Bar.	
8.	Release Override.	Squeeze Pa}m Switches.		Identify Announced Round.		Maintain Engine RPMs.	-
9.	*Close/Lock Hatch.	Lay Center Of Reticle On Target Cent Of Mass.	ter 🔲				
10.	Look Through Rangefinder	Track Target.		Unlock Round From Rack.		Honitor Commands,	
11.	Range To Tärget.	*Apply Lead. Listen For Range.		Remove Round.			
12.	Announce Range.	Lay Announced Range On Center Of Pa	22.			Monitor Gages,	
13.	Command "FIRE."	Listen for "FIRE."		Listen for "FIRE."			
14.	Listen For "ON THE WAY."	Announce "ON THE WAY." Make Final Lay.		lister for "OM THE WAY."			
15.	Brice For Recoll.	Pause 1 Second. Squeeze Fir'ng Triggen(s). Continue Tracking.	0	Brace For Recuit,		Erece For Recoil.	
16.	*Ammunce Serving.	Relay Or Target Aiming fount. Announce Sensing. Listen for TC Command.	0	insure SAFETY In SAFE. Load Round. Listen for IC Command.		tisten for Driving Command.	-
:7.	*Issue Subsequent Fire Conward:	*Respond To TC Cormand	\Box	*Respord To TC Command:		*Respond To TC Command:	
	. Fire Adjust, Then Steps 18-21.	. Ipply Corrections, Then Steps Min	î'.	. Ic Steps 'E-21.		. Co Steps 18-21.	
	Ther Steps 18-21.	, Fire Rejust, Then Steps (8-71)		. Lo Steps 18-21,		. Do Steps 18-21.	
	. Command Inches Fifte." Ther Steps 15-24.	, Co Steps 72-74		. Do Steps 22-24.		. Do Steps 22-24.	

18,	Listen for "UP,"		Listen For "UP."		Insure Path Of Recoil is Clear.	Monitor Gages.
			*Track Target.		Place SAFETY In FIRE.	
			*Apply Land.		Announce "(10,"	
19.	Listen for "ON THE WAY."		FARQUACE "ON THE MAY."		Identify Announced Round.	Meintain Engine RPM .
			Make finel Lay.		Unlack Round From Rack.	
					Pembre Round.	
					Listem For "ON THE WAY."	
20.	Brace For Recoil.		Fause 1 Second.		Erace For Recoil.	Crace For Recoil,
			Squeeze Firing Trigger(s).			
			*Continue To Track.			
21.	Announce Sensing.	_	Relay On Target Aiming Point,	0	Insure SAFETY In SAFE.	Listen For Criving Command.
			Announce Sensing.	oʻ.	Load Round.	
			Listen for TC Command.		Listem For TC Command.	
22.	Issue Subsequent Fire Commend:		Respond To TC Command:		Respond To TC Commend:	Respond To TC Command:
	Command "CEASE FIRE."		. Place MAIN GUM Switch In OFF.		. Place Turret Blower In OFF.	, Prepare To Orive Rearward.
					, Reload/Restow Ammo,	
23.			Update Fire Control System.	0	Check Replenisher Tape.	Follow Driving Commands.
	Alternate Firing Position.				Remove Spent Casings.	
					Rosume Target Search,	
24.	Acknowledge Crew Reports.		Report Firing Status.		Report Loading Status.	Report Driving Status.

STATIONARY TANK/SIMULTANEOUS TARGET ENGAGEMENT DRILL

	TANK COMMANDER	GUNNER		LOADER		DRIVER	
١,	Acquire/Identify Target.	Maintain Fire Control System. Monitor Commands.		Search For Targets. *Acquire/Identify Target.		Maintain Ergine RPM . Monitor Gages.	
				*Report Targét.		Monitor Commands,	
2.	Issue Fire Command.	Insure Turret Power Is ON.		Drop Down Into Turret.		Listen For Driving Comman	d.
		Insure Announced Ammo Is Indexed	đ.	*Close/Lock Hatch.			
		Place MAIN GUN Switch in ON.					
3.	Lay Gun For Direction. [Look Through Telescope.		Insure Turret Is Unlocked/Clea	r.	*Release Brakes.	
				*Place Turret Blower In ON.			
4.	Command "DRIVER MOVE OUT, GUNNER TAKE OVER."	Issue Driving Command.		Insure Path Of Recoil is Clear		Shift To L.	
	Some Park View	_				Drive Tank Forward.	
5.	Listen For "DRIVER STOP."	Insure Gun Is Clear Of Terrain.		Place SAFETY In FIRE.		Listen For Driving Comman	đ.
		AHROUNCE "DRIVER STOP."				Stop Tank,	
6.	Listen For "UP."	Look Through Periscope.		Announce "UP."		Hold Brakes Depressed.	
		Detect/Recognize Target				Shift To R.	
		Listen For "UP."					
7.	Listen for "IDENTIFIED."	Announce "IDENTIFIED."		Listen For "IDENTIFIED."		Remove Hands From T-Bar.	
8.	Release Override	Squeeze Palm Switches		Identify Announced Round.		Maintain Engine RPMs.	
9.	*Close/Lock Hatch.	Lay On Target Center Of Mass.					
C.	Look Through Rangefinder At Targ	et. Apply Lead.		Unlock Round From Rack.		Monitor Commands.	
١.	Range To Target. {	☐ Track Target.		Remove Round.			
2.	Command "FIRE AND ADJUST CALIBER FIFTY."	Listen for "FIRE."		Listen for "FIRE."		Monitor Gages,	
3.	"Listen For "ON THE WAY."	Announce "ON THE WAY."		Listen For "ON THE WAY."			
		Make Final Lay.					
4.	*Brace For Recoil.	Pause 1 Second.		Brace For Recoil.		Prace For Recoil.	
		Squeeze Firirg Trigger(s).					
		Continue To Track.					
5.	Insure Cal .50 Gun Safety in F.	Relay On Target Aiming Point,	()	insure SAFETY In SAFE.		Listen For Driving Command	<u> </u>
		Anrounce Sensing,		Load Round.			
		Listen For "TC COMPLETE."		Listen For TC/Gunner Commands.			
€.	Place Gun Electrical Safety Switch in ON.	Take Command Actions:		Respond To TC/Gunner Commands:		Respond to TC/Gunner Comma	ands 🔲
		, Fire Adjust, Then Steps 18-22.		. Do Steps 18-22.		. Do Sters 18-22.	
		. Announce "CEASE FIRE," Then Step 17, 23-26,		. Do Steps 17, 23-26.		. Do Steps 12, (3-26,	

17,	"Hold Electrical Power Control Switch To ON.	0	Place MAIN GUN Switch In OFF. Assist TC In Fire Adjustment. Listen For "TC COMPLETE."	00	Assist TC/Cal .50 Operation. Listen For "TC COMPLETE."		Monitor Commands.	
18.	Estimate Range.		Listen for "UP."		Insure Path Of Recoil Is Clear		Monitor Commands.	,
			*Apply Lead.		Place SAFETY In FIRE. Announce "UP."		Monitor Gages.	
19.	Lay Cal ,50 Cm Target.		Announce "ON THE MAY." Meke Finel Lay.	۵	Identify Announced Round.		Meintain Engine RPM .	0
			rener cure.		Remove Round, Listen For "ON THE MAY."			
20.	Fire 10-15 Round Burst.		Pause 1 Second. Squeeze Firing Trigger(s). *Continue To Track.		Brace For Recoil.		Brace For Recoil.	
21.	Sense Tracer Impact.		Relay On Target Alwing Point, Announce Sensing,	0 0	Insure SAFETY In SAFE. Load Round. Listem For TC/Gunner Commends.	0	Lister For Driving Command.	
22.	Adjust fire.		Take Command Actions: . Repeat Step 16.		Respond To TC/Gunner Commands: . Repeat Step 16.		Respond To TC/Gunner Commands . Repeat Step 16	•:0
23.	Command "TC COMPLETE."		"Place MAIN GUN Switch in OFF.	Ω	Reload/Restow Aumo.		Maintain Engine RPM .	
24.	Place Gun Electrical Safety Switch In OFF.	۵	Update Fire Control System. Monitor Commands.		Remove Spent Casings. Check Replenisher Tape.	۵	Monitor Gages.	
25.	Move To Turret-Down OR Alternate Firing Position,		Monitor Oriving Commands.		Resume Target Search.		Follow Driving Commands.	
26.	Acknowledge Crew Reports.		Report Firing Status.		Report Loading Status.		Report Driving Status.	

STATIONARY TANK/MULTIPLE TARGET ENGAGEMENT DRILL

	TANK COMMANDER		GUNNER		LOADER		DRIVER	==
١.	Acquire/Identify Target.		Maintain Fire Control System.		Search for Target.		Maintain Engine FPMs.	
			Monitor Commands.		*Acquire/Identify Target.		Monitor Gages.	
					*Report Target.		Monttor Commands	
2.	Issue Fire Command.		Insure Turret Power Is ON.		Brop Down Into Turret.		ister Eur Driving Comman	٥.
		_	Insure Announced Ammo Is Indexed.		*Close/tock Hatch.			
			Place MAIN GUN Switch In ON.					
3.	Lay Gun For Direction.		Look Through Telescope.		Insure Turret is Unlocked/Cl+	,, .	*Release Brakes.	
					*Place Turnet Blower In ON.			
4.	Command "DRIVER MOVE OUT, GUNNER TAKE OVER."		Issue Driving Command,		Insure Path Of Recoil Is Clea	٠.	Shift To Drive Tank forward.	
5.	Listen For "DRIVER STOP."		Insure Gun Is Clear Of Terrain.		Place SAFETY In FIRE.		itstem For Driving Comman	đ.
			Announce "DRIVER STOP."				Stor Tank.	
6.	Listen For "UP."		Look Through Periscope.		Announce "UP."		Hold Brakes Depressed.	
			Detect/Recognize Target.				Shift To R.	
			Listen for "UP."					
7.	Listen for "IDENTIFIED."		Announce "IDENTIFIED."		Listen For "IDENTIFIED."		Remove Hands from [↑] -Bar.	
8.	Release Override		Squeeze Palm Switches		Identify Announced Round.		Maintain Engine RPMs.	
9.	*Close/Lock Hatch.		Lay On Target Center Of Mass.					
10.	Look Through Rangefinder At T	arget.	Track Target.		Unlock Round From Rack.		Moritor Commands.	
11.	Range To Target,		*Apply Lead.		Remove Round.			
12.	Command "FIRE."	0	Listen For "FIRE."		Listen For "FIRE."		Munitor Gayes.	
13.	Listen For "ON THE WAY."		Announce "ON THE WAY,"		Listen For "Oh THE WAY,"			
			Make Final Lay,					
14,	Brace For Recoil.		Pause 1 Second.		Brace For Recoil.		Erace For Recoil.	
			Squeeze Firing Trigger(s).					
			Continue Tracking.					
15.	*Announce Sensing.		Relay On Target Aiming Point.		Insure SAFETY In SAFE.		L ster For Driving Command	1.
			Announce Sensing.		Load Round.	[]		
			Listen For TC Command.		Listen For TC Command,			
16.	*Issue Subsequent Fire Command	: 🗆	*Respond To TC Command:		*Respond To TC Command:	(3	*** spend to to command:	
	. Fire Adjust, Then Steps 21-	24.	. Apply Corrections, Then Steps 21-	24.	. Do Steps 17-24.		. Co Steps 17-24.	
	. Let Gunner Adjust Fire, Then Steps 21-24.		. Fire Adjust, Then Steps 21-24.		. Do Steps 17-24,		Do Steps 17-24.	
	. Command "(Next Target)" Then Steps 17-24.		. Do Steps 17-24.		. Do Steps 17-24.		, in Sters 17-24.	
	. Command "CEASE FIRE." Then Steps 26-27.		. Do Steps 25-28.		. Dn Steps 25-28.		GC Steps 25+28,	

17.	Listen For "IDENTIFIED."		Announce "IDERTIFIED."	Insure Path Of Recoil Is Cle	er.	Monitor Commands.	
				Place SAFETY In FIRE.			
18.	Listen For "UP."		Lay On Target Center Of Mass.	Annount of "UP."			
			Lister For "UP."				
19.	*Range To Target.		*Track Target.	Identify Announced Round.		Maintain Engine RPM .	
			*Apply Lead.	Unflack Round From Rack.			
				Remove Round.			
20.	Command "FIRE."		Listen For "FIRE."	Listen For "FIRE."		Monitor Gages.	
21.	Listem for "ON THE WAY."		Announce "ON THE WAY."	Listen For "ON THE WAY,"			
			Hake Final Lay,				
22.	Brace For Recoil,		Fause 1 Second,	Brace For Recoil,		Brace For Recoil.	
			Squeeze Firing Trigger(s).				
			*Continue To Track.				
23.	Announce Sensing.		Relay On Target Aiming Point.	Insure SAFETY In SAFE.		Listen For Driving Command	- ه.
			Announce Sensing.	Load Round.			
			Listen For TC Command.	Listen For TC Command.			
24.	Issue Subsequent Fire Command:		Respond To TC Command:	Respond To TC Command:	а	Respond To TC Command:	
	. Repeat Step 16.		. Repeat Step 16.	 . Repeat Step 16.		. Repeat Step 16.	
25.	Command "CEASE FIRE."		Place MAIN GUM Switch In OFF.	Reload/Restow Ammo.		Maintain Engine RPM .	_
26.	Return To Turret-Down OR Alternate Firing Position.		Update Fire Control System.	Remove Spent Casings.		Follow Oriving Commands,	
	The second secon	_	Monitor Commends.	Check Replenisher Tape,			
27.	Acknowledge Crew Reports.		Report Firing Status.	Report Status.		Report Driving Status.	

MOVING TANK/STATIONARY TARGET ENGAGEMENT DRILL

1.	TANK COMMANDER Acquire/Identify Target.		GUNNER Search For Targets. *Acquire/Identify Target. *Peport Target.	.2552.	LOADER Search for Targets. *Acquire/Identify Target. *Peport Target.	1177	DRIVER Search for Target. *Acquire/Identify Target. *Keport Target.	==
2.	Issue fire Command.		Insure Announced Ammo Is Indexed. Insure STAC Is ON.		Orop Down Into Turret. *Close/Lock Hatch.		Listen For Oriving Command	-
3.	*Direct Driver Toward Turget,		Place MAIN GUN Switch in ON.	٥	Insure Turret is Unlocked/Clear *Place Turret Blower in OM.	٠.	Follow Uriving Command.	
4.	Lay Gun for Direction.		Look Through Periscope. Detect/Recognize Target.		Tasure Path Of Recoil Is Clear. Place SAFETY In FIRE.		*Oetect/Recognize Target.	
5.	Listen for "UP."		Listen For "UP."		Announce "UP."		Search For Hull-Down Positions.	
6.	Listen for "IDENTIFIED."		Announce "ICEMTIFIED."		*Listen for *IDENTIFIED.*		Listen For Driving Command	S.
7.	Release Override.		Grasp Power Control Handles.	0	Identify Announced Round.		*Continue Search For Hull- Down Position.	_
8.	*Close/Lock Hatch.		Lay On Target Center Of Hass.		Unlock Round From Rack.		Establish Steady Speed/ Direction.	
9.	Look Through Rangefinder.		Listen for Eriver Alerts.		Listen for Driver Alerts.		Alert Crew Of Obstacles.	
10.	Turn Computer OFF,		Track Target.		Remove Round.		Monitor Gages.	
u.	Range To Target.		Watch for Reticle Jump.					
12.	Turn Computer ON.		Relay On Tarcet.				Monitor Commands.	
13.	Command "FIRE."		Listen for "FIRE."		Listen for "FIRE."			
14.	Listen For "ON THE WAY,"		Announce "ON THE WAY." Make Final Lay.		Listen for "On THE WAY."		Meintain Steady Speed/ Direction.	
15.	Brace For Recoff		Pause 1 Second. Squeeze Firing Trigger(s). Continue To Track.	0	Brace For Recoil.		Brace For Recoil.	
16.	*Announce Sensing.		Relay On Target Airing Foint. Announce Sensing. Listen for TC Command.	0	Insure SAFETY In SAFE, Load Round, Listen For TC Command,	0	*Round Sense. Listen For Griving Command	_
17.	*Issue Subsequent Fire Command.	. 🗖	*Respond To TC Command:		*Respond To TC Command:		*Respond To TC Command:	
	. Fire Adjust, Then Steps 18-2	22.	. Apply corrections, Then Steps 18-7	??.	. Do Steps 18-22.		. Do Steps 18-22.	
	. Let Gunner Adjust fire, Then Steps 18-22.		, Fire Adjust, Then Steps 18-22.		. Do Steps 18-22.		. Do Steps 18-22.	
	. Command "CEASE FIRE." Then Steps 24-25.		. Do Steps 23-25.		. Do Steps 23-25,		. Do Steps 23-25.	

5.	Acknowledge Crew Reports.	 Report Firing Status.		Report Loading Status.		Report Oriving Status.	<u>.</u>
				Resume Target Search.		Alert Crew Of Obstacles.	
		Listen for Oriver Alerts.		Remove Spent Casings.		Adjust Speed/Direction.	
4.	Issue Driving Command.	Continue To Scan.		Check Replenisher Tape.		Follow Driving Command.	
3.	Command "CEASE FIRE."	*Place MAIN GUM Switch In OFF	0	*Reload/Restow Ammo.		Orive Tactically,	-
	. Repeat Step 17.	Repeat Step 17.		. Repeat Step 17.		Repeat Step 17,	
22.	Issue Subsequent Fire Command:	Respond To TC Command:		Respond To TC Command:		Respond To TC Command:	
		Listen For TC Commend.		Listen For TC Command.			
		Announce Sensing.		Load Round.		Listen For Driving Command.	
a.	Announce Sensing.	Relay On Target Aiming Point.		Insure JAFETY In SAFE.		*Round Sense.	
		 *Certimue To Track.					_
		Squeeze Firing Trigger(s).					
20.	Brace For Recoil,	Pause 1 Second.		Brace For Recoil.		Prace for Recoil.	
				Ramove Round. Listen for "ON THE WAY."			
		Make finel Lay.		Unlock Round From Rack.		Monitor Commands.	_
19.	Listem for "ON THE WAY."	Announce "ON THE WAY."		Identify Announces Round,		Maintain Steady Speed/ Direction.	
		*Apply Lead,	0	Announce "UP,"		Alert Crew Cr Obstacles.	٠
		Listen for Driver Alerts.		Place SAFETY in FIRE.		Alert Crew Of Obstacles.	
18.	Listen for "UP."	Listen For "UP."		Insure Path Of Record Is Clear.	•	Continue Search For Hull- Down Positions.	

MOVING TANK/BATTLESIGHT TARGET ENGAGEMENT DRILL

	TANK COMMANDER	GUNNER		LOADER	 DRIVER	=
1.	Acquire/Identify Target.	Search for Targets. *Acquire/Identify Target. *Report Target.		Search For Targets, *Acquire/Identify Target, *Report Target.	Search for Target, *Acquire/Identify Target, *Report Target.	
2.	Issue Fire Command.	Insure Announced Ammo is Indexed. Insure STAB IN ON.		Drop Down Into Turret. *Close/Lock Hatch.	Listen For Briving Command.	
3.	*Direct Oriver Toward Target.	Place MAIN GIRL Switch In ON.		Insure Turret Is Clear. *Place Turret Blower Is ON.	Follow Driving Command.	
4.	Lay Gun For Direction.	Detect/Recognize Target.		Insure Path Of Recoil Is Clear. Place SAFETY In FIRE.	Detect/Recognize Target.	
5.	Listen For "UP."	Listen For "UP."		Announce "UP."	Search for Hull Down Positions.	
6.	Listen for "IDENTIFIED."	Announce "IDENTIFIED."		*Listen for "IDENTIFIED."	Listen For Driving Commands	
1.	Release Override.	Grasp Power Control Handles.		Identify Battlesignt Round.	*Continue Search For Hull- Down Position.	_
		Listen For Criver Alerts.		Listen For Driver Alerts.	Alert Crew Of Obstacles.	
8.	*Close/Lock Hatch.	Lay On Target Center Of Mass.		Unlock Round From Rack,	Establish Steady Speed/ Direction.	
9.	Look Through Rangefinder,	Track Target.		Remove Round.	Monitor Gages.	
10.	Command "FIRE."] Listen For "FIRE."		Listen For "FIRE."	Monitor Commands,	
11,	Listen For "OM THE WAY,"	Announce "ON THE WAY." Make Final Lay.	0	Listen for "ON THE WAY."	Maintain Steady Speed/ Direction,	
12.	Brace For Recoil.	Pause 1 Second.		Brace For Recoil.	Brace For Recoil.	
		Squeeze Firing Trigger(s). Continue To Track.				
13.	*Announce Sensing.	Relay On Target Aiming Point. Announce Sensing. Listen For TC Command.	0	insure SAFETY In SAFE. Load Round. Listen For TC Command.	*Round Sense. Listen For Driving Command.	-
14,	*Issue Subsequent Fire Command: ["Respond To TC Command:		*Respond To TC Curmand:	*Respond To TC Command:	
	. Fire Adjust, Then Steps 15-19.	; Apply Corrections, Then Steps 15-	19.	. Do Steps 15-19.	. Do Steps 15-19.	
	. Let Gunner Adjust Fire, Then Steps 15-19.	. Fire Adjust, Then Steps 15-19.		. Co Steps 15-19.	. Do Steps 15-19.	
	. Command "CEASE FIRE." Ther. Steps 21-22.	. Do Steps 20-22,		. Do Steps 20-22.	 . Do Steps 20-22.	_

15.	Listen For "UP."	Listen For "CP,"		Insure Path Of Recoil Is Clear	•	Continue Search For Hull- Down Positions,	
		Listem For Oriver Alerts.		Place SAFETY In FIRE.		Alert Crew Of Obstacles.	
		*Apply Leed.		Announce "UP."		Monitor Commands.	
16.	Liston For "ON THE WAY."	Ammounce "ON THE WAY." Make Finel Lay,	٥	Identify Battlesight Round, Unlock Round From Rack, Remove Round, Listem For "ON THE MAY."		Maintain Steady Speed/ Direction.	
17.	Brace Fer Recoil.	Pause 1 Second. Squeeze Firing Trigger(s). *Continue To Track.	0	Brace For Sacoil,		Erace For Mecoil,	
10.	Announce Sensing,	Pelay On Target Aiming Point. Announce Sensing. Listem For TC Command.	0	Insure SAFETY In SAFE. Load Round. Listen For TC Command.		*Round Sense. Listen For Driving Command.	-
19,	Issue Subsequent Fire Command: , Repeat Step 14,	Respond To TC Command: . Repeat Step 14.	0	Respond To TC Commend: . Repeat Step 14.		Respond To TC Command: . Repeat Step 14,	
20.	Command "CEASE FIRE."	*Place MAIN GUM Switch In OFF.	a	Reload/Restow Ammo.		Orive Tactically.	-
21.	Issue Driving Command.	Continue To Scan. Listen for Oriver Alerts.		Check Replanisher Tape, Remove Spent Casings, Resume Target Search.		Follow Driving Command. Adjust Speed/Direction. Alert Crew Of Obstacles.	0
22.	Acknowledge Crow Reports.	Report Firing Status.		Report Loading Status.		Report Driving Status.	

Non-AOS Tanks Must Stop To Engage Targets Acquired While On The Move.

MOVING TANK/COAX TARGET ENGAGEMENT DRILL

	ASS_CONGRAVER			LUAUER			=
1.	Acquire/Identify Target.	Search For Targets, *Acquire/Identify Target, *Report Target,		Search For Targets, *Acquire/Identify Target, *Report Target,		Search For Target. *Acquire/Identify Target. *Report Target.	_
2.	Issue Fire Command.	Index HEP. Insure STAB Is ON. Insure MAIN GUN Switch in OFF.		*Drop Down Into Turret. *Close/Lock Hatch. Insure Turret Is Clear.		Listen For Driving Command.	
3. 1	Direct Driver Toward Target.	Place COAX Switch in ON.		*Place Turret Blower in ON, Insure Coax Is Loaded/Charged,	_	Follow Driving Command.	
4.	tay Gun For Direction.	Oetect/Recognize Target,		Place Machinegun Safety In F.		Detect/Recognize Target,	
5.	Listen For "UP."	Listen For "UP."		Announce "UP."		Establish Steady Speed/ Direction.	
€.	Listen For "IDENTIFIED."	Announce "IDENTIFIED."		*Listen For "IDENTIFIED."		Listen For Driving Command	\$ _. ,
7.	Release Override.	Gresp Power Control Handles.	0	Grasp Ammo Belt Near Receiver (M73 only)		*Search For Hull-Down Positions.	-
٤.	*Close/Lock Hatch.	Place Center of Infinity Sight Over Target Area.		Maintain 3-4 Inches Slack From Ammo Box (M73 only).		Monitor Gages.	
9.	Estimate/Announce Range.	Track Target.		Listen For Driver Alerts.		Maintain Steady Speed/ Direction.	
		Listen For Driver Alerts.				Alert Crew Of Obstacles.	
10.	Command "FIRE."	Listen For "FIRE."		Listen For "FIRE."		Monitor Commands.	
11.	Listen For "ON THE WAY."	Announce "ON THE WAY."		Listen For "ON THE WAY."			
12.	Observe Tracer Impact.	Fire 20-25 Round Durst. Continue To Track.		Observe Tracer Impact. Monitor Ammunition Feed.		*Observe Tracer Impact.	
:3.	*Announce Sensing.	*Announce Sensing. Listen For TC Command.		*Round Sense. Listen For TC Command.		*Round Sense. Listen For TC Command.	
14.	*Issue Subsequent Fire Command:	Respond To TC Command:		Respond To TC Command:		Respond To TC Commend:	
	. Fire Adjust, Then Repeat Steps 12-14.	. Apply Corrections, Then Repeat Stens 12-14.		Ropeat Steps 12-14.		• Repeat Steps 12-14.	
	. Let Gunner Adjust Fire, Then Repeat Steps 12-14.	Adjust Fire, Then Repeat Steps 12-14.		. Ropeat Steps 12-14.		Repeat Steps 12-14.	
	. Command "CEASE FIRE," Then Steps 16-17.	. Do Stepš 15-17,		. Do Steps 15-17.		. Do Steps 15-17.	
15.	Command "CEASE FIRE."	Place COAX Switch in OFF.		Place Machinegun Safety In S.		Drive Tactically.	
16.	Issue Driving Command,	Continue To Scan.		Remove Spent Brass.		Fallow Driving Commend.	
		Listen For Univer Alerts.		Retoad Coax Armo Box. Fasume Target Search.		Adjust Speed/Direction. Alert Crew Of Obstacles.	
17.	Acknowledge Crew Reports.	Report Firing Status,		Report Loading Status.		Report Driving Status.	
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MOVING TANK/MOVING TARGET ENGAGEMENT DRILL

	TANK COMMANDER		GUNNER		LOADER		DRIVER	==
1.	Acquire/Identify Target.		Search For Targets. *Acquire/Identify Target. *Report Target.		Search For Targets. *Acquire/Identify Target. *Report Target.		Search For Target. *Acquire/Identify Target. *Report Target,	
2.	Issue Fire Command.		Insure Announced Ammo Is Indexed. Insure STAB Is Oil.		Drop Down Into Turret. *Close/Lock Hatch.		Lister For Driving Command	d.
3.	*Direct Driver Toward Target.		Place MAIN GUN Switch In ON.		Insure Turret is Clear. Place Turret Blower In ON.	0	Follow Driving Command.	
4.	Lay Gun For Direction.		Detect/Recognize Target.		Insure Path Of Recoil Is Cle Place SAFETY In FIRE.	ar.	*Detect/Recognize Target,	
5.	Listen For "UP,"		Listen For "UP."		Announce "UP,"		Search For Hull-Down Positions,	
6.	Listen For "IDENTIFIED."		Announce "IDENTIFIED."		*Listen For "IDENTIFIED."		Listen For Oriving Command	ıs.
7.	Release Override.		Grasp Power Control Handles. Lay On Target.		Identify Announced Round.		*Continue Search For Hull- Down Positions.	
8.	Command "DRIVER STOP."		Listen For "DRIVER STUP."		*Brace For Stop.		Stop Tank. Shift To N.	
9.	*Close/Lock Hatch.		tay On Target Center Of Mass.		Unlock Round From Rack.		Hold Brakes Depressed.	
10.	Look Through Rangefinder		Track Target.		Remove Round.		Remove Hands from T-Bar.	
11.	Range To Target.		*Apply Lead.				Maintain Engine RPM .	
12.	Command "FIRE."		Listen For "FIRE."		Listen For "FIRE."		Monitor Commands.	
13.	Listen For "ON THE WAY."		Announce "ON THE WAY." Make Final Lay.		Listen For "ON THE WAY."		Monitor Gages.	
14.	Brace For Recoil.		Pause 1 Second, Squeeze Firing Trigger(s), Continue Tracking,		Brace For Recoil,		Erace For Recoil,	
15.	*Announce Sensing.		Relay On Target Alming Point, Announce Sensing, Listen For TC Command,	0	insure SAFETY in SAFE. Load Round. Listen For TC Command.	<u> </u>	Listen For Eriving Command	<u> </u>
16.	*Issue Subsequent Fire Command	_	*Respond To TC Command:		*Respond To TC Command:		*Respond To TC Command:	
	. Fire Adjust, Then Steps 25- . Let Gunner Adjust Fire, Then Steps 25-28,	28.	. Apply Corrections, Then Steps 21, 25-28.	25-28.	. Do Steps 19-21, 23, 25-28, . Do Steps 19-21, 23, 25-28,		. Do Steps 19-21, 23-28. . Do Steps 19-21, 23-28.	
	. Command "CEASE FIRE," Then Steps 17-28.		. Do Steps 17-28.		. Do Steps 17-28.		. Do Steps 17-28.	
	. Command "TARGET, CEASE FIRE Then Steps 30-31,	• "	. Do Steps 29-31.		. Do Steps 29-31.		. Do Steps 29-31.	

17.	Command "DRIVER MOVE OUT."	Continue Tracking.	Prepare To Move Out.		Release Brakes.	
		Listen For "DRIVER MOVE OUT."			Smift To L.	
18.	Issue Fire Command.	Listen For Fire Command.	Listen For Fire Command.		Establish Steady Speed/ Sirection.	
19.	*Lay Gun For Direction.	*Detect/Recognize Target.	Insure Path Of Recoil Is Cle	ear.	Alert Crew Of Obstacles.	
		Listen For Oriver Alerts.	Listen For Driver Alerts.			
20.	Listen For "IDENTIFIED."	Announce "IDENTIFIED."	Place SAFETY In FIRE.		Monitor Commands.	
			*Listen For "IDENTIFIED."		Monitor Sages.	
21.	Listen For "UP."	Listen For "UP."	Announce "UP."		Listen For Oriving Comman	d.
22.	Command "DRIVER STCP."	Listen For "ORIVER STOP."	*Brace For Stop.		Stop Tank.	
23.	*Range To Target.	Lay On Target Center Of Mess.	Identify Announced Round.		Shift To N.	
		*Apply Lead.	Unlock Round From Rack.		Hold Brakes Depressed.	
			Remove Round.		Remove Hands From T-Bar.	
24.	Command "FIRE."	Listen for "FIRE."	Listen For "FIRE."		Maintain Engine RPM .	
25.	Listan For "ON THE WAY."	Announce "ON THE WAY."	Listem For "ON THE MAY."		Monitor Commands.	
		Make Final Lay.			Monstor Gages.	
26.	Brace For Recoil,	Pause 1 Second.	Brace For Recoil,		Brace For Recoil.	
		Squeeze Firing Trigger(s).				
		*Continue Tracking.				
27.	Announce Sensing.	Relay On Target Aiming Point.	Insure SAFETY In SAFE.		Listen For Driving Comman	<u> </u>
		Announce Sensing.	Load Round,			
		Listen For TC Command.	Listen For TC Command.			
28.	Issue Subsequent Fire Command:	Respond To TC Command:	Respond To TC Commend:		Respond To TC Command:	
	. Repeat Step 16.	, Repeat Step 16.	. Repeat Step 16.		. Repeat Step 16.	
29.	Command "CEASE FIRE."	*Place MAIN GUN Switch In OFF.	Reload/Restow Ammo.		*Continue Search For Hull- John Positions.	
30.	Essue Oriving Command.	Continue To Scan.	Check Replemisher Tape.		Follow Driving Commands.	
		Listen For Driver Alerts.	Remove Spent Casings.		Adjust Speed/Direction.	
			Resume Target Search.		Alert Crew Of Obstacles.	
31.	Acknowledge Crew Reports.	Report Firing Status.	Report Loading Status.		Report Driving Status.	

Mon-AOS Tanks Must Stop To Engage Targets Acquired On The Move.

MOVING TANK/SINULTANEOUS TARGET ENGACEMENT DRILL PROCEDURES GUIDE

١.	TANK COMMANDER Acquire/Identify Target.		Search For Targets. *Acquire/Identify Target.	nn m	LOADER Search For Targets. *Acquire/identify Target.	11111	DRIVER Search For Target. *Acquire/Identify Target.	±.=
			*Report Türget.		*Peport Target.		*Report Target.	_
2.	Issue Fire Cureand,		Insure Announced Ammo Is Indexed.		Drop Down Into Turret.		Listen for Eriving Command	
			Insure STAC Is ON.		*Close/Lock Hatch.			
3.	*Pirect Driver Toward Target.		Place MAIN GUN Switch In ON.	0	Insure Turret Is Clear. Place Turret Blower In ON,		Follow Oriving Command.	
٤.	Lay Gum For Direction.		Detect/Recognize Target.		Insure Path Of Recoil Is Clear. Place SAFETY In FIRE.		*Detect/Recognize Target,	
5.	Listen For "UP."		Listen for "UP."		Announce "UP."		Search For Hull-Down Positions,	
6.	Listen For "IDENTIFIED."		Announce "IDENTIFIED."		*Listen For "IDENTIFIED."		Listen For Griving Command	s.
?.	Release Override.	0	Grasp Power Control Handles.	0	Identify Announced Round.		*Continue Search For Hull- Down Position.	
e.	*Close/Lock Hatch.		Lay On Target Center Of Mass.	Ü	Unlock Roung From Rack.		Establish Steady Speed/ Direction.	
9.	Look Through Rangefinder At I	arget.	Listen for Eriver Alerts.		Listen For Criter Alerts.		Alert Crew Of Obstacles.	
C.	Turn Computer CFF.		Track Target,		Remove ound,		Moritor Gages.	
١.	Range To Target.		Wetch For Reticle Jump.					
2.	Turn Computer ON.		Relay On Target.				Monitor Commands.	
3.	Command "FIRE AND ADJUST, CALIBER FIFTY."		Listen for "FIRE."		Listen For "FIRE."			
۹.	*Listen For "ON THE WAY."		Announce "ON THE WAY." Have Final Lay.		Listen For "OM THE WAY."		Maintain Steady Speed/ Direction.	o
5.	*Brace For Recoil,		Pause 3 Second.		Brace For Recoil.		Prace For Recoil.	
			Squeeze Firing Trigger(s).					
			Continue To Track.					
6.	insure Cal .50 Gun Safety in	F.	Relay On Target Aiming Point		Insure SAFETY In SAFE.		*Round Sense.	
			Arnounce Sensing.		Load Round.		Listen For Griving Command	
			Listen for "TC COMPLETE."		Listen For TC/Gunner Command.			
	Flace Gun Electrical Safety Switch In ON.	173	Take Command Actions:	LΊ	Respond to TC/Gunner Commands:	0	Respord To TC/Gunner Comman	ods 🗀
	Jeroch in Ge.	IJ	. Fire Adjust, Them Steps 19-23.		. Cc Steps 19-23.		. Do Steps 19-23.	
			, Announce "DRIVER STOP," Fire Adjust Then Steps 19-23		. Prepare To Stop, Then Steps 19	-23,	, Stop Tank, Then Steps 19-	23
			. Announce "CEASE FIRE," Then Step 18		, On Step 18,		, Do Step 18,	

18,	"Hold Electrical Pener Centrel Suitch To MI.		Place MAIN GUM Switch in OFF.	0	Assist TC/Cal .50 Operation.		"Continue Search for Hull Dtum Positions.	
			Assist TC in Fire Adjustment, Listen For "TC COMPLETE." Then Steps 24-27.	0	Listen For "TC COMPLETE," Then Steps 26-27,		Maintain Standy Speed/ Direction.	0
19,	Estimble Range.		Listen For "UF." Listen For Driver Alerts. "Apply Leed.	0	Insure Path of Receil is Clear, Place SAFETY in SAFE, Ammeunce "UP."	<u> </u>	Alert Crow Of Obstacles.	_0
29.	Lay Cal .50 On Torquit	0	Assessmen "MI THE MIY." Name Finel Lay,	0	Identify Announced Round, Unlock Round From Rack, Remove Round, Liston for "RN THE MAY,"	0	Manitor Commands, Manitor Coges, Maintain Steedy Speed/ Direction,	0
n.	Fire 18-15 found Burst.	0	Paces 1 Second, Squeeze Firing Trigger(s), *Continue To Track,	٥	Brace For Recott,		Brace For Receil,	
22.	Samee Tracer Impact.		Relay On Target Aining Point, Annualse Sanaing, Listan For "TC CONVLETE,"	0	Insure SAFETY In SAFE, Lood Round, Liston For TC/Bunner Commends,	0	Round Sense, Listen for Oriving Command	
23.	Adjust Fire.	0	Tabe Command Action: . Repeat Step 17.	0	Respond To TC/Gunner Commands: , Report Step 17,	0	Respond To TC/Gornner Commo . Repeat Step 17.	~•□
N.	Command "TC COMPLETE,"	0	Place MAIN Bull Switch in OFF,	0	*Place Turret Slower In OFF, Relead/Restow Amm.		Drive Tectically,	-
3 5.	Place fun Electrical Safety Switch in OFF.	0	Year Through Unity Mendow,		Check Replemisher Tape, Remove Spont Casings.	0	Meintain Stoody Spood/ Direction.	
26.	Issue Oriving Command.		Continue To Scan, Listen For Oriver Alerts,		Liston for Briver Alerts, Resume Target Search,		Follow Driving Command. Adjust Speed/Direction.	0
							Alert Crew Of Obstacles.	

Thou-AGS Tacks Must State To Escape Toronts Acquired While On The Hove

SOCIAL SOCIALISM CALACTERS OF SOCIAL SOCIAL

MOVING TANK/MULTIPLE TARGET ENGAGEMENT DRILL $^{\rm 1}$

	TANK COMMANDER		GUNNER		LOADER		DRIVER	_
١.	Acquire/Identify Target.			Search For Targets, *Acquire/Identify Target, *Report Target,		Search For Target. *Acquire/Identify Target. *Report Target.	•	
2.	Issue Fire Command.	0	Insure Announced Ammo Is Indexed. Insure STAB Is ON.		Orop Down Into Turret. *Close/Lock Hatch.		Listen For Driving Command.	-
3.	*Direct Driver Toward Target.		Place MAIN GUN Switch In CM.	0	insure Turret Is Clear. Place Turret Blower In ON.	0	Follow Oriving Comments.	_
4.	Lay Gun For Direction.	0	Detect/Recognize Target.		Insur- Path Of Recoil Is Clear Place SAFETY In FIRE.	r. 	*Netect/Recognize Target.	
۶.	Listen For "UP."		Listen For "UP."		Announce "UP."		Search For Hull-Down Positions.	
ε.	Listen for "IDENTIFIED."		Announce "IDENTIFIED."		"Listen For "IDENTIFIED."		Listen for Driving Commands	
1.	Release Override.	Grasp Power Control Handles. Lay On Target.				Identify Announced Round.		
€.	Command "DRIVER STOP."		Listen For "DRIVER STOP."		*Brace For Stop.		Stop Tank. Shift To M.	
9.	*Close/Lock Hatch.		Lay On Target Center Of Mass.	et Center Of Mass. Unlock Round From Rack.			Hold Brakes Depressed.	C
10,	Look Through Rangefinder At Ta	rget,	Track Target.		Remove Round.		Remove Hands from T-Bar.	C
n.	Range To Target.		*Apply Lead.				Maintain Engine RPM .	С
12.	Command "FIRE."		Listen for "FIRE."		Listen For "FIRE."		Monitor Commands.	
13.	Listen For "ON THE WAY."		Announce "ON THE WAY." Make Final Lay.		Listen For "ON THE WAY."		Monitor Gages.	
14.	Brace for Recoll,		Pause 1 Second. Squeeze firing Trigger(s). Continue Tracking.	0	Brace For Recoil,		Brace For Recoll.	
15.	*Announce Sensing.		Relay On Target Aiming Point, Announce Sensing, Listen For TC Command.	0	Insure SAFETY In SAFE. Load Round. Listen For TC Command.	0	Listen For Driving Command.	-
i€.	*Issue Subsequent Fire Command:		*Respond To TC Command:		*Respond To 1C Command:		"Respond To TC Command:	
	Fire Adjust, Then Steps 25-2 Let Conner Adjust Fire,	8.	. Apply Corrections, Them Steps 25- . Fire Adjust, Them Steps 25-24	28.	. Do Steps 19-21, 23-28. . Do Steps 19-21, 23-28.		. Do Steps 19-21, 23-28. . Do Steps 19-21, 23-28.	
	Then Steps 25-28. Command " (Next Target)."		. De Steps 17-25.		. Do Steps 17-28.		. Do Steps 17-28.	
	Then Steps 17-28 Commond "CEASE FIRE." Then		. Do Steps 17-23.		. Do Steps 29-37.		. Do Steps 29-31.	
	Steps 30-31.		. wu acaps ca-ai.		. no steps earsi.		. na 200k2 ca-a:-	

17.	Command "DRIVER MOVE OUT."		Track Target.		*Brace For Moving Out.		Shift To L.	
							Orive Tank Forward.	0
18.	Issue Fire Command.	0	Listen For Fire Command.		Listen for Fire Command.		Establish Steedy Speed/ Direction.	0
19.	"Lay Que For Direction.		*Detect/Recognize Target,		Insure Path Of Recoil Is Clear	r.	Alert Crew Of Obstacles.	
			Listen For Oriver Alerts.		Listem For Driver Alerts.			
20.	Listen for "IDENTIFIED."		Announce "IDENTIFIED."		Place SAFETY In FIRE.		Monitor Commends.	
					"Listen For "IDENTIFIED."		Monitor Gages.	
21.	Listen for "UP,"		Listen For "UP."		Announce "UP."		Listen For Driving Command	١.
22.	Command "DRIVER STOP."	0	Listen for "DRIVER STOP,"		*Srece For Stop.		Stop Tank.	0
23.	*Range To Target.		Lay On Target Center Of Mass.		Edentify Announced Round.		Shift To M.	
			*Apply Lead.		Unlack Round From Rack.		Hold Brakes Depressed.	0
					Remove Round.		Remove Hands From T-Bar.	
24,	Command "FIRE."	0	Listem For "FIRE."		Listen for "FIRE."		Maintain Engine RPM .	
25.	Listen For "ON THE WAY."		Announce "ON THE MAY."		Listen for "ON THE WAY."		Monitor Commands.	
			Make Final Lay.				Monitor Gages.	
26,	Brace For Recoll.		Pause 1 Second.		Brace for Receil.		Brace For Recoil.	
			Squeeze Firing Trigger(s).					
			*Continue Trecking.					
27.	Announce Sensing.		Relay On Target Aiming Point.		Insure SAFETY In SAFE.		Listen For Driving Command	
			Announce Sensing.		Lood Round.			
			Listen for TC Command.		Listen For TC Command.			
28 .	Issue Subsequent Fire Command:		Respond to TC Command:		Respond to TC Command:		Respond To TC Command:	
	. Report Step 16.	_	. Aspect Step 16.		. Report Step 16.	_	. Repeat Step 16.	
29.	Command "CEASE FIRE."		*Place MAIN GUM Switch In OFF.	0	*Place Turret Blower In OFF.		*Continue Search For Mull-	_
					Reload/Restau Asso.		Down Positions.	
JO.	Issue Driving Commend.		Continue To Scan.		Check Replenisher Tape.	Q	Fellow Oriving Commends.	
			Liston For Oriver Alerts.		Nameve Spent, Cosings,	•	Adjust Spend/Direction,	
					Resume Target Search.		Alert Crew Of Obstacles.	
31.	Acknowledge Crew Reports.		Report Firing Status.		Report Loading Status.		Report Driving Status.	

Ron-AOS Tanks Must Stop To Engage Targets Acquired While On The Maye,

RANGE CARD ENGAGEMENT DRILL

	TARI COFFARER	GUNNER		LOADER		DPIVER	==	
۱.	Noceive Platoca Leader Fire (capang.	*Search For Target.	Listen for Fire Command,	Lister for Fire Command.				
		"Acquire/!derflfy Target.						
		*Meport Terget.						
Z.	Command "GUNNER, HEP, AREA FIRE.	insure Turret Power Is ON.		Insure Turret is Erlocked/Clear		Start Engine.	_	
		Flace MAIN CON Switch in Oh,		*Place Turret Blower In ON.		Insure Drakes Are Locked.		
3. 4	Catain/Review Range Card.	Insure HEP Is Indexed,		Insure Path Of Recoil Is Clear.		Remove Hands From T-Bar.	IJ	
				Place SAFETY In FIRE.		Maintain Engine RPM .		
4.	Listen for "UP,"	Listen For "UP."		Amounce "UP."		Henitur Gages.		
5,	Announce "DEFLECTION**	Grasp Hamuel Traverse Handle.		Identify HEP Round.		Moritor Cummands.	_	
		Traverse To Announced Deflection.						
		Release Handle,						
٤.	Yerify Deflection Road Back.	Repeat *OEFLECTION*		Unlock HEP From Rack.				
7.	Index Range Into Rangefinder And Amnounce.	Grasp Manual Elevation Control.		Ramove HEP.	0	Paintain Engine RPM .		
8.	Anneunce "QUADRANT"	Index Announced Elevation On Quadrant	_					
		Conter Gubble On Elevation Cusdrant.						
9.	Verify Quedrent Reed Back.	Repeat "CUMBRANT"				Monitor Gages.		
0.	Comment "FIRE."	Listen for "FIRE."		Listen for "FIRE,"				
t.	Listen for "ON THE WAY."	Frauerce "ON THE WAY."		Listen For "OK THE MAY."				
z.	Brace for Recoil.	Pause 1 Secced,		Brace for Recoil.		Erace For Recoil.		
		Squeeze firing Trigger						
3.	Hemiter Fire Pajustment.	Check Deflection.		Insure SAFETY In SAFE,		Monitor Commands.		
		Ace 1 PIL.		LOSE HEP.				
		Center Bubtle,		Insure Path Of Recoil Is Clear.				
4.	Listen for "UP."	Listen for "UP."		Place SAFETY In FIRE.		Mairtain Engine RPM .		
				Announce "UP."				
5.	Liston for "OR THE WAY."	**************************************		Identify HEP.		Monitor Gages.		
				Unlock HEP From Rack.				
				Aurove HEP.				
				Listen for "ON THE WAY."				
6.	Erace For Mecoil.	Pause 1 Second.		Brace for Rectil.		Prace For Recuil.		
		Squeeze Fining Trigger						

17.	Monitor Fire Adjustment,	Check Beflection.		Insure SAFETY In SAFE,		Monitor Commands.	
		Drep 2 FILS.		Land HEP.			
		Center Bubble,		Insure Path Of Recoil Is Clear.	•		
18,	Repent Steps 14-16,	Papert Staps 14-16.	0	Repeat Staps 14-16,		Repeat Steps 14-16.	0
19.	Meniter Fire Adjustment.	AND 1 MEL.		Insure SAFETY In SAFE,		Monitor Commends.	-
		Troverse RIGHT SO HILLS.		Load MEP.			
		Canter Subble.		Insure Path Of Recoil Is Clear.			
10.	Repeat Steps 14-16,	Repeat Steps 14-16,	0	Repeat Stops 14-16.		Repeat Steps 14-16,	0
zı.	Muniter Fire Adjustment.	Traverse LEFT 100 MILS.		Insure SAFETY In SAFE.		Menitor Commands.	-
		Cortor Bubble.		Load HEP.			
				Insure Path Of Recoil Is Clear.	•		
22.	Aspent Steps 14-16,	August Stape 14-16.		Repost Staps 14-16.	0	Report Stops 14-16.	
23.	Comment "CEASE FIRE."	Place MAIN GUR Shitch in GFF.		Insure SAFETY In SAFE,		Meleose Brokes.	-
				Asland/Rostov HEP.			
				"Place Turret Blower In Off.			
и.	Return Gun To Primary Target.	Fellow TC Commands.	0	Check Replenisher Tape,		Listen for Criving Command.	
		Resume Target Search.		Auntive Sport Casings.			
25.	Acimeniadge Crow Reports.	Report Firing Status.		Report Loading Status.		Report Firing Status.	

activities reserves activities

STATES STATES STATES

RANGE CARD LAY TO DIRECT FIRE TARGET ENGAGEMENT DRILL

	TONA COMMANDER	GUNNER		LOADER		DRIVER		
		**Search For Target. **Acquire/Identify Target. **Report Target.		Listen For Fire Commend.		Lister For Fire Command.	_	
Z.	Command "GUNNER DIRECT FIRE INDEX NEP, FIRE (Assoc)"	Insure Turret Power Is ON. Place MAIN GUN Switch In Oh.		Insure Turret Is Unlocked/Cle	Insure Turret Is Unlocked/Clear.			
3.	*Obtain/Review Range Card.	lesure HEP Is Indexed. Open		Open Breech Manually.	Insure Brakes Are Depressed			
4.	Announce **[Make Hental Note Of Target.		Remove HEP Round.		Remove Hands From T-Bar.	_0	
5.	Announce "DEFLECTION	Grasp Manual Traverse Handle, Traverse To Arnounced Deflection. Release Handle,	0	Stow HEP In Rack.		Maintain Engine RPM .		
6.	Verify Deflection Pood Back.	Repeat "LEFLECTION"		Identify Announced Round. Unlock Round from Rack. Remove Round.	۵	Monitor Commands.		
7.	Index Range Into Rangefinder And Announce.	Grasp Manual Elevation Control.		Load Round.				
8.	Announce "QUADRANT	Index Announced Elevation On Quadrant Center Bubble. Release Control.	<u>,</u>	Identify Announced Round, Unlack Round From Reck, Remove Round,		Monitor Gages.		
9.	Verify Quadrant Read Back.	Repeat "QUADRANT"		Insure Path Of Recoil Is Clea	r.			
10.	Listen For " INDEXED."	Announce "INDEXED."		Listen For "IDENTIFIED."				
11.	*Look Through Rangefinder.	Lock Through Periscope.		Place Turret Blower In ON.		Monitor Commands.	_	
12.	Acquire/Identify Target When Illuminated.	Detect/Recognize Target When Illumina	ted.					
13.	Listen for "IDENTIFIED."	Announce "IDEKTIFIED." Squeeze Palm Switches.		Place SAFETY in FIRE.		Maintain Engine PPM .		
14.	Listen For "UP."	Listen for "UP."		Announce "UP,"		Monitor Gages.		
15.	*Range To Target.	Lay On Target Center Of Mass. Track Target. Apply Lead.	000					
16.	Command "FIRE."	Listen For "FIRE."		Listen for "FIRE."				
17.	Listen For "ON THE WAY."	Announce "ON THE WAY." Make Final Lay.		Listen For "ON THE WAY,"				
18.	Brace For Recoil.	Pause 1 Second.		Brace For Recoil.		Erace For Recoil.		
19.	Close Eyes Momentarily.	Close Eyes Momentarily. Souceze Firing Trigger(s). Continue To Track.	000	*Close Eyes Momentarily.	Ω	Close Eyes Momentarily.		

29.	*Amounce Sensing.		Relay On Target Aiming Foint.		Insure SAFETY In SAFE.	Liston For Griving Command	۱.
			Announce Sensing.		Load Round.		
			Listen For TC Commend.		Liston for TC Command.		
21.	*Istue Subsequent Fire Commend:		*Respond To TC Command:		"Respond To TC Command:	*Respond To TC Command:	
	. Fire Adjust, Them Steps 22-26	j.	. Apply Corrections, Them Steps 22	-26.	. Do Steps 22-26.	. Do Staps 22-26.	
	. Let Quener Adjust Fire, Then Steps 22-26.		. Fire Adjust, Them Steps 22-26,		. Do Steps 22-26.	. Do Steps 22-26.	
	. Command "CEASE FIRE," Then Stope 28-29.		. Do Stops 27-29.		. De Steps 27-29.	. De Steps 27-29.	
22.	Listen for "UP."		Listen For "UP."	0	Insure Path Of Recoil Is Clear.	 Henfter Commands.	
			*Track Target.		Place SAFETY In FIRE.	Monitor Gages.	
			*Apply Lood.		Announce "UP."		
22.	Listen for "ON THE WAY."		Announce "OR THE WAY."		Identify Announced Round.	Maintain Engine RPP .	٥
			Make Finel Lay.		Unlock Round From Rack.		
					Remove Round.		
					Lister for "ON THE WAY."		
24.	Brace Fer Receil.		Pause 1 Second.		Brace For Recoil.	Erace for Recoil.	
25.	Clase Eyes Humantarily	0	Close Eyes Momentarily	0	*Close Eyes Mamontarily.	Close Eyes Momentarily.	
			Squeeze Firing Trigger(s).				
			*Continue To Track.				_
26.	Announce Sensing.		Relay On Target Aiming Point.		Insure SAFETY In SAFE.	Listen For Driving Command	.
			Announce Sensing.		Load Mound.		
			Listen For TC Command.		Listen for TC Command.	 	_
27.	Issue Subsequent Fire Command:	_	Respond To TC Command:		Respond To TC Command:	Respond To TC Commend:	
	. Command "CEASE FIRE."	0	. Place MAIN GUM Switch in OFF.	0	.*Place Turret Blower In OFF Reload/Restow Ammo.	. Prepare To Drive Rearway	rd. 🔲
28.	Have to Turret-Down Or	_	Update fire Control System.		Check Replenisher Tape.	Follow Driving Commends.	
	Alternate Firing Position.		Resume Target Search.		Remove Spent Casings.		
29.	Acknowledge Crew Reports.		Report Firing Status.		Report Loading Status.	Report Oriving Status.	

STATE OF THE PARTY OF THE WINDOW WASHING SECTION SECTION OF THE PARTY OF THE PARTY

Table C-1
CRY MILL TAKET SERVICING REGUIRDENTS
FOR MEALLAGS TANK CREIS

		0.000	2	MATOR S	MEAPON SYSTEM FABLURE	-		-1
	TIGHT - ING		MYN MSC	MITH MASS	Jan	į	STATES	- {
112 112 112 112 112 112 112 112 112 112								
4. Single - Noin Gen Stationery vs. Moving Gall Periscope - Precision								
3. Single - Main Gun Stationary vs. Moving Telescope - Precision								
Lameous - Main Gun/ 30 Deary Vs. Hav/Sactioner Copes - Pre/Suppresive								
Maring to Sectionary Salignet to Sectionary Salignet Sections								
State - Cas Nacringue Baring vs Sattonery Infinity - Superastive								
9. Single - Min Gan Mering vs. Mering GM Periscope - Precision								
lù. Simultaneous - Main Gun/,50 Cal Maring st. Mav/Stationary Periscopes - Pre/Supprestive								
11. Multiple - Main Gan Maring vs. Stationary SME Perfector - Precision				_			,	
12. Single - Main Gar Stationery vs. Stationary Auxiliery - Mange Card						***		
13. Single - Main Gan Stationary vs. Maring Samps Card Lay to Direct Fire								

Table C-2

M60Al(AOS) EQUIPMENT CONDITIONS BY CREW STATION AND DRILL

						CRE	WE	RII	L				
TC STATION	1	2	3	4	5	6	7	8	9	10	11	12	13
Cal .50 Electrical Safety Switch In OFF	x	x	x	x	x	x	x	x	x	X	x	x	х
Cupola Power Switch In OFF	X					X			X	X	X	X	X
Range Card Prepared IAW FM 17-12-2												X	x
Cal .50 Safety In F										X			
GUNNER STATION	1	2	3	4	5	6	7	8	9	10	11	12	13
ELEV/TRAV POWER Switch In ON	x	X	x	x	X	x	X	X	X	X	x	X	x
Periscope Ballistic Shield Is OPEN	X	X	X	X	X	X	X	X	X	X	X	X	X
MAIN GUN Switch In OFF	X	X	X	X	X	X	X	X	X	X	X	X	X
MACHINE GUN Switch In OFF	X	X	X	X	X	X	X		X	X	X	X	X
POWER Switch In ON	X	X			X		X		X	X	X	X	X
AMMO SELECT Handle In APOS	X	X	X		X		X		X	X	X		
COMPUTER Switch In ON	X	X		X	X	X	X		X	X	X	X	X
STAB Switch IN ON						X	X	X	X	X	X		
AMMO SELECT Handle In HEP							_					X	X
1200 Indexed In Computer			_				X						
APDS/HEP Reticle In Telescope			X										
LOADER STATION	1	2	3	4	5	6	7	8	9	10	11	12_	13
Turret Lock In UNLOCKED	x	x	X	x	x	X	x	X	x	x	x	X	X
Main Gun Safety In SAFE	X	X			X		X	X	X	X	X	X	X
TURRET BLOWER Switch In OFF	X		X	_	X		X	X	X	X		X	X
Breech Locked Open	X	X	X	X	X	X	X		X	X	X	X	X
Breech Locked Closed								X					
Coax Loaded/Charged								X					
Coax Safety In F								X					
DRIVER STATION	<u> 1</u>	2	3	4	5	6	7	8	9	10	11	12	13
MASTER BATTERY Switch In ON	x	X	x	X	X	X	X	X	X	x	x	X	X
Trans Shift Control In P	X	X	X	X	X							X	X
Trans Shift Control In H						X	X	X	X	X.	X		
Engine Idling at 700-750 rpm	X	X	X	X	X								
Tank Moving at 10-20 moh						X	X	X	X	X	X		